SPORTSMAN'S GAZETTEER

AND GENERAL GUIDE.

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THE

SPORTSMAN'S GAZETTEER

AND

GENERAL GUIDE.

THE GAME ANIMALS, BIRDS AND FISHES OF NORTH AMERICA:
THEIR HABITS AND VARIOUS METHODS OF CAPTURE.

COPIOUS INSTRUCTIONS
IN SHOOTING, FISHING, TAXIDERMY, WOODCRAFT, ETC.

BY CHARLES HALLOCK,
EDITOR OF "FOREST AND STREAM;" AUTHOR OF THE "SPORTSMAN'S RIFLE," "CAMP LIFE IN FLORIDA," ETC.

NEW YORK:
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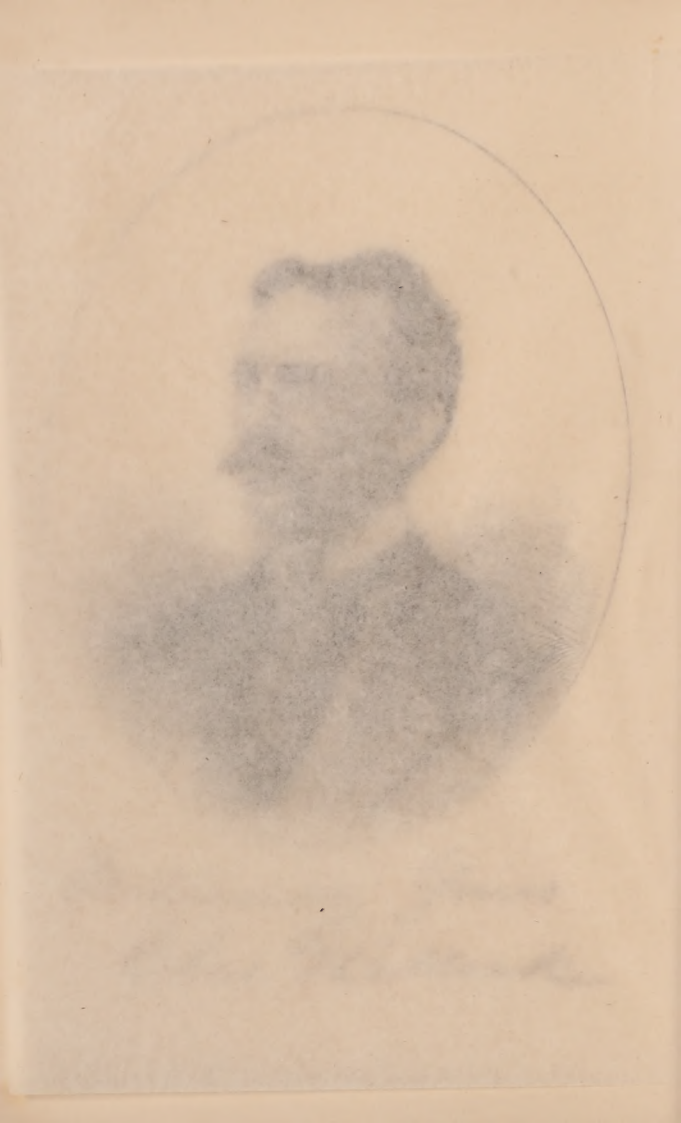

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TOGETHER WITH

A DIRECTORY TO THE PRINCIPAL GAME RESORTS OF THE COUNTRY; ILLUSTRATED WITH MAPS.

BY CHARLES HALLOCK,

EDITOR OF "FOREST AND STREAM;" AUTHOR OF THE "FISHING TOURIST," "CAMP LIFE IN FLORIDA," ETC.

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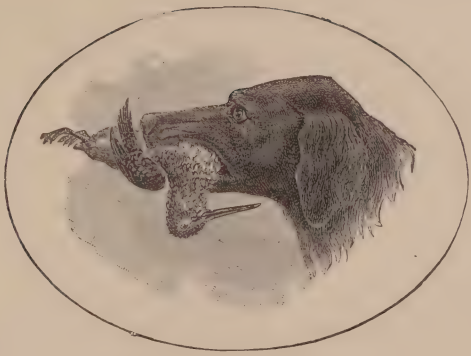
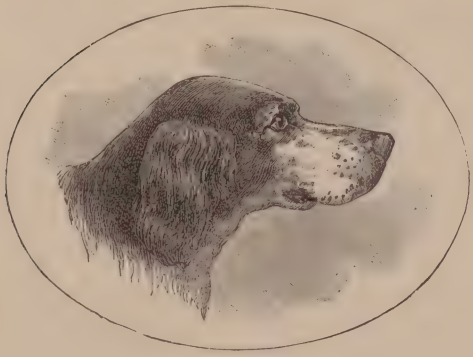


DEDICATED

TO

THE LOVERS OF LEGITIMATE SPORT.



PREFACE.

BROTHER SPORTSMEN:

AS editor of a sportsman's journal for several years, and weekly purveyor of information continually asked for by its readers, I have long felt the need of constant reference to just such a compendium as the volume in hand; and hence, judging others' requirements by my own, I was prompted to undertake a work which has required much labor in its preparation and care in its revision. Whatever may be its estimation by the Fraternity, I am satisfied that the relief which the collocation will afford myself will prove an ample compensation, even if I should receive no other. The book must speak for itself. I am willing to let it stand on its merits, while conscious that its extended scope renders it liable to defects, and the more vulnerable to criticism. To anticipate mischances, I have indicated in its proper place a list of reliable works of reference which will supply whatever is lacking here.

With regard to the Guide to Game Resorts, which I know some gentlemen will take me to task for publishing, I wish to plead that the rapid spread of population and settlement, the multiplication of those who look to the rod and

gun for sport, and the constant opening of new lines of communication to all parts of the country, make it certain that all accessible places will be brought to speedy notice; while, as for remote and difficult localities—well, if any sportsman has the pluck and energy to seek them out he deserves to enjoy the fruits of his perseverance. I regard concealment a virtue no longer; although I may whisper it privately that with some latent consideration of the vested or pre-empted rights and prerogatives of old-time sportsmen, I have purposely refrained from indicating many places where the woodcock, the snipe, the trout, and the salmon, have their sequestered haunts. These shall be held as sacred from intrusion as the penetralia of the Vestals.

I have only to add that I have been materially assisted in the preparation of this work by Dr. H. C. Yarrow, of the Smithsonian, Dr. D. C. Estes, of Minnesota, Dr. G. A. Stockwell, of Port Huron, Michigan, and Geo. Bird Grinnell, of the Peabody Museum at Yale College. Mr. J. H. Batty prepared the chapter on Taxidermy, and Messrs. Joseph Woodward and Chas. B. Reynolds have given valuable service in compiling the Guide.

Fraternally yours,

CHARLES HALLOCK.

NEW YORK, June 1st, 1877.

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PART I.

GAME ANIMALS OF NORTH AMERICA.

CATS.

Felis concolor.—Linn. Puma, Panther, Cougar, Mountain Lion.

THE Cougar is, with the exception of the Jaguar, *Felis onca*, which is scarcely, or not at all, found within the limits of the United States, the largest of the American cats. Its range is very extensive, including temperate and tropical America from Canada to Patagonia. In height it is about equal to a large dog, but the body is much longer proportionally, and a large animal will weigh one hundred and fifty pounds. The tail is long and tapering, and this point will serve to distinguish it, even when young, from either of the two species to be hereafter mentioned. The color of the Cougar is a uniform pale brown above and dusky white below; the tips of the hairs are blackish brown. Young kittens of this species are at first spotted on the flanks, but attain the colors of the parent before reaching their full size.

The Cougar preys upon deer, sheep, colts, calves and small quadrupeds generally, and when numerous it proves very troublesome to the farmer and stock raiser. When, however, its prey is so large that it cannot all be devoured at one meal, the animal covers it with leaves or buries it in the earth and leaves it for a time, returning later to finish his repast. This habit is sometimes taken advantage of by his human enemy, who, poisoning the hidden carcasswith strychnine, often manages to secure the Panther when it comes back to eat again. The use of poison against carnivorous animals of all kinds has become so general in the west within the past few years, that they are rapidly becoming exterminated in all districts within

reach of the settlements. All flesh eaters, from the skunk to the huge grizzly, are taken by this means, and the vultures, ravens and magpies suffer heavily by eating the remains of animals that have been killed in this way. Indeed, were it not for some such means of defence as this, the sheep raisers of Southern California and New Mexico, and the cattle growers of Utah, Montana and Wyoming would be quite powerless to protect their herds from the attacks of many enemies which could only be driven off by a large force of dogs and mounted men. As it is, however, each shepherd and herder is provided as a matter of course with a certain amount of strychnine, and all dead carcasses are poisoned, so that before long the country is freed from the depredations of animals injurious to stock. The period of gestation of the Cougar, as observed in the Gardens of the Zoological Society of London, is ninety-seven days. It brings forth in the spring from two to four young.

Lynx rufus.—Raf. Bay Lynx, Wildcat, Catamount, etc.

The Bay Lynx is another species of wide range, inhabiting the whole territory of the United States and extending into the British Possessions on the north, and Mexico on the south. It is a small animal, measuring from the nose to the tip of the tail only about thirty-five inches, of which this latter organ occupies but five. In color it somewhat resembles the Cougar, but the brown is more nearly a red as is indicated by the name Bay. The tail is black at the tip as are the inner surfaces of the ears. The color of the under parts is white with some black spots.

The Bay Lynx is a timid animal, preying chiefly upon grouse, hare, and still smaller birds and mammals. It scarcely deserves mention as a game animal. Its young, usually three in number, are produced in April or May according to the latitude which the animal inhabits. They are said to be from the first utterly wild and untamable. Variety *maculatus*, Aud. and Bach., is found in Texas, and variety *fasciatus*, Raf., in Washington Territory and the extreme Northwest generally.

Lynx canadensis.—Raf. Canada Lynx, Catamount, Loup Cerver, Lucifee.

The Canada Lynx is a more northern species than either of the preceding, and on the Atlantic coast scarcely enters the United

States. On the Mackenzie River it is found as far north as latitude 66° and it inhabits the mountains of Western America; it occurs at least as far south as Fort Tejon, California, where specimens have been taken. Like many other truly northern species, it is found much farther south among the high mountains of the West, than on the Eastern side of the continent. The Canada Lynx is about forty inches in total length. The tail is very short and stumpy. The animal is wholly of a pale grey color with the exception of the tip of the tail and the extremities of the ears, which are black. The feet are enormous and are densely furred. Altogether the animal presents a very savage appearance, but it is really very timid, and will always avoid an encounter even with a small dog. In its habits it resembles closely the Bay Lynx. The Canada Lynx brings forth two or three young in the spring. It breeds but once a year.

The three species referred to above are not to be regarded as game animals. They nowhere exist in sufficient numbers to make it worth while to hunt them systematically, and almost all that are taken, are secured by means of traps or poison. Occasionally, it is true, the hunter may happen on one when seeking for game, or the angler while following a stream may start one from the brush or from a tree which overhangs the brook, but in such cases they are gone almost as soon as seen, and rarely give one time to shoot at them. Those that are killed with firearms are generally treed by dogs which are hunting bears, coons, or foxes, and are shot by the hunters who are following the dogs. There is no danger in any of these animals unless wounded or cornered; an enraged cat, however, is by no means a contemptible antagonist, and the hunter should keep clear of its claws. Instances are on record of the death of more than one man who has put himself in the way of a wild cat, and of course the panther is more dangerous by as much as he is larger.

WOLVES.

Canis lupus.—Linn. (? var.) Grey, Timber, or Buffalo Wolf.
Canis latrans.—Say. Prairie Wolf, Coyote

WE have always been taught to regard the Wolf as the type of all detestable qualities, but he has also been invested in romance and tradition with a courage and ferocity which is very foreign to his nature. He is in fact, the most cowardly of all our animals, possessing some of the intelligence of the dog, but none of the higher instincts which long association with man has worked into the being of the latter. The wolves unless pressed terribly by hunger will never attack any animal larger than themselves, and then only in packs. A cur dog, as a rule, can drive the largest wolf on the plains. Lean, gaunt and hungry looking, they are the essence of meanness, and treachery personified. The two common species of the plains are the Grey or Buffalo Wolf, *Canis lupus*, and the ever present Coyote or Prairie Wolf, *Canis latrans*, who makes night so hideous on the plains to novices unused to his unearthly serenade. The Buffalo Wolf is almost as tall as a greyhound, and is proportioned about like a setter dog. It is found of all colors, from jet black in Florida and red in Texas to snow white in the arctic regions. In the west the color is generally grey or grizzled white, sometimes brindled. The ears are erect, and the tail, long and well haired, is generally carried straight out behind, but when the animal is frightened is put between his legs like that of the dog under similar circumstances. The Prairie Wolf is in size about half way between the red fox and Grey Wolf. Its color is similar to that of its larger relation of the plains, but is of a more yellowish cast.

The larger of these two species was once universally distributed throughout North America, but is now confined to the wildest and least settled portions of the country. The Prairie Wolf is an inhab-

itant of the plains and mountains west of the Missouri, and is found from the British Possessions south into Mexico, from the inhabitants of which it has derived its common name, Coyote. In the southern portion of its range it is a miserable cur scarcely larger than the common fox. These two species, *C. lupus* and *C. latrans*, are plenty generally throughout the west and the southwest, but are most numerous in a buffalo country. They subsist on any refuse they can pick up, and are always found on the outskirts of settlements or forts slinking here and there, eking out what subsistence they may by snatching any stray morsels of food that come in their way. A band of wolves will follow a party of hunters, and at any time half an hour after breaking camp in the morning, the scavengers may be seen prowling around the still smoking fires, and quarrelling over the debris of the morning meal. Very young buffalo calves, and decrepid bulls or badly wounded animals are attacked by these creatures in packs and torn to pieces. They will follow a wounded bison for miles, waiting and watching for the animal to lie down, when they will assail it from all quarters. Wolves breed freely with the dog and in any Indian camp the traveller will see dogs, so called, that cannot be distinguished from their wild cousins. The young are brought forth in May and number from five to nine.

As often as the winter season sets in the hunters who make a business of it start out on a wolfing expedition. The stock in trade of a party engaged in "wolfing" consists in flour, bacon and strychnine, the first two articles named for their own consumption, the last for the wolves. The first thing to be done is to procure a bait. Generally a buffalo is used, but if it happens to be out of a buffalo range, then an elk, deer, coon, or other animal is made to answer the purpose. The carcass is then impregnated with the poison and placed where it will do the most good. Sometimes as high as fifty wolves will be found of a morning scattered about at intervals of a few yards from the carcass that they ate so ravenously of the night before.

The "wolfers" proceed to gather up animals slain, carry them to camp, fix up another bait if necessary, and then commences the labor of skinning and stretching. It is no uncommon thing for a party of three men to come down in the spring with four thousand pelts, and as they will average about one dollar and a half apiece

it is a very profitable business, if you are only successful in your "catch."

Wolfers form a class by themselves and this is their regular occupation during the winter season. Spring time finds them in the towns where in a week's time they have gambled and drunk away all their earnings; they then disappear, not to be seen again until the following spring.

Wolves are sometimes hunted on horseback with hounds, but the speed they can attain when well scared is something astonishing, and they can easily distance any ordinary dogs. The method employed is to have among the pack, one or more greyhounds who will bring the wolf to bay and allow the other dogs to come up.

Some day in the not very remote future, this kind of sport and coursing hares is destined to become popular and will be a favorite amusement among the sportsmen of the West.

FOXES.

Vulpes vulgaris.—var. *Pennsylvanicus.* Coues. **Common Red Fox.**
Vulpes macrourus.—Baird. **Prairie Fox.**
Vulpes velox.—Aud. and Bach. **Swift Fox, Kit Fox.**
Vulpes lagopus.—Rich. **Arctic Fox.**
Urocyon cinereo-argentatus.—Coues. **Grey Fox, Virginia Fox.**
Urocyon littoralis.—Baird. **Little Grey Fox.**

OF the species enumerated above it is necessary to speak only of the Red Fox and the Grey. The others mentioned are never hunted and are only taken by means of traps or poison ; they do not therefore come within the scope of this work.

The Red Fox is too well known to require description. He differs but very little from his celebrated English relative to whose capture so much time is devoted, on the other side the water, and like him he proves a terrible pest to the farmer. There are several permanent colors of this species analogous to the different colors in our squirrels, young of very different appearance being found in the same litter. The Cross Fox and the Silver-grey are the best known of these differently-colored animals.

The Grey Fox is a more southern species than the Red and is rarely found north of the State of Maine. Indeed it is not common anywhere in New England. In the Southern States, however, it wholly replaces the Red Fox and causes quite as much annoyance to the farmer as does that proverbial animal. The Grey Fox is somewhat smaller than the Red and differs from him in being wholly dark grey " mixed hoary and black."

The Grey Fox differs from his northern cousin in being able to *climb trees.* He is not much of a runner, and when hard pressed by the dog will often ascend the trunk of a leaning tree by running up it, or will even climb an erect one, grasping the trunk in his arms as would a bear. Still the fox is not at home among the branches, and he looks and no doubt feels very much out of place while in this predicament.

In Ohio and in others of the Middle States, foxes are said to be hunted as follows: On an appointed day the whole population of the neighborhood turn out and enclose as large a tract of country as possible, all hands leisurely advancing toward some point near the centre of the circle; as they advance all the noise possible is made that the game may be driven before them. When the circle is quite small and the foxes are seen running about looking for an opening by which to escape, small boys are turned in with directions to catch the animals, a task which is not accomplished without a good deal of exertion and perhaps a bite or two. When a fox is caught it is sold to pay the expenses of the hunt.

Fox hunting as practiced in "merrie England" was transported to this country as early as the middle of the eighteenth century. In the mother country it has attained a most important position among the national sports. A fox hunt there is one of the greatest pleasures accorded to the titled gentry, and the scene is often graced by the presence of some fair equestriennes who will even take part in the chase. Horses are bred for the purpose and a first-class hunter commands a large price.

Fox hunting first came generally in vogue in Great Britain some two hundred years ago, and was introduced into Virginia perhaps a hundred years later. The old custom has been sustained with difficulty through many vicissitudes up to the present day.

The topography of our southern country, however, prevents the use there of the orthodox English fox hound, since the heavy timber lands and high fences would effectually prevent keeping a pack of these dogs in view. We need a slower hound, and this the F. F. V.'s, fond of this branch of sport, have procured by crossbreeding with the old English hunting stock. Fox hunting thus practiced has been confined almost exclusively to the South, particularly Virginia. Many planters of leisure and means were accustomed, *avant la guerre*, to keep a number of hounds for no other purpose, and with the best riders of the neighboring county periodically held their "meets," when with horn, whipper-in and all other accompaniments, according to true English fox hunting rules, they would proceed to start Reynard and follow him to the death. Since the war, however, the demoralized condition of many sections of the South, and the greatly impaired fortunes of the former participants

in this manly sport, have combined to render fox hunting well nigh impossible, and until horseback riding attains in both North and South a more national character, there is but little hope of resuscitating this delightful sport. The fox pursued in the South is the Grey Fox, *Urocyon cinereo-argentatus;* he is in part replaced north of Maryland by our common red fox, *Vulpes vulgaris*, and in the west by the Swift Fox, *Vulpes velox*, and other species. With us of the North, foxing is by some followed during the late fall and winter, for the skins of the animal, which bring a fair price in market. The hunters stand near the runways while the hounds start the fox. The latter traverses the country by regular paths and some one of the hunters, if careful, is generally successful in bagging Reynard.

Foxes live in holes of their own making, generally in the loamy soil of a side hill, and the she-fox bears four or five cubs at a litter. When a fox-hole is discovered by the farmers they assemble and proceed to dig out the inmates who have lately, very likely, been making havoc among their hen-roosts. An amusing incident which came under our immediate observation a few years ago will bear relating. A farmer discovered the lair of an old dog fox by means of his hound who trailed the animal to his hole. This fox had been making large and nightly inroads into the poultry ranks of the neighborhood, and had acquired great and unenviable notoriety on that account. The farmer and two companions, armed with spades and hoes, and accompanied by the faithful hound, started to "dig out the varmint." The hole was situated on the sandy slope of a hill, and after a laborious and continued digging of four hours, Reynard was unearthed and he and "Bep" were soon engaged in deadly strife. The excitement had waxed hot, and dog, men and fox were all struggling in a promiscuous melée. Soon a burly farmer watching his chance strikes wildly with his hoe-handle for Reynard's head, which is scarcely distinguishable in the maze of legs and bodies. The blow descends, but alas! a sudden movement of the hairy mass brings the fierce stroke upon the faithful dog, who with a wild howl relaxes his grasp and rolls with bruised and bleeding head, faint and powerless on the hillside.

Reynard takes advantage of the turn affairs have assumed, and before the gun, which had been laid aside on the grass some hours

before, can be reached he disappears over the crest of the hill. An old she-fox with young, to supply them with food, will soon deplete the hen-roost and destroy both old and great numbers of very young chickens. Foxes generally travel by night. As before mentioned they follow regular runs, but are exceedingly shy of any invention for their capture, and the use of traps is almost futile. When occasionally they do "put their foot in it" they will gnaw the captured pedal extremity entirely through and escape, leaving this member as a memento. In this respect they fully support their ancient reputation for cunning. They will use most adroit tactics in throwing dogs off their scent when hotly pursued. The western species is not hunted in any manner.

Their flesh is probably as good food as dog-meat, but is not generally classed by epicures as among the good things of this earth. Their food consists, besides chickens, of geese, ducks and young turkeys, also grouse and quail when they can be procured without a great outlay of labor; but the farmyard generally furnishes a cheap and staple diet to Reynard.

In closing we add a fervent hope that the "Yoicks" and "Tally ho" will soon again be heard throughout the South, and the echoes be borne afar and taken up by the Northern sportsmen who still love the exciting chase and chivalric deeds, concomitants of an old-fashioned fox hunt.

GRIZZLY BEAR.

Ursus horribilis.—Ord.

THE well-known Grizzly inhabits the Western portions of the continent, from the Missouri River to the Pacific coast, but is found most abundantly in the Rocky Mountains and the Sierra Nevadas. It is the largest of the genus found within the limits of the United States, sometimes weighing from fifteen hundred to two thousand pounds, and its ferocity makes it by far the most dangerous antagonist that the hunter will meet.

A technical description of it would be about the following:—Size very large; tail shorter than ears; hair coarse, darkest near base, with light tips; an erect mane between shoulders; feet large, fore claws double the length of the hinder; a dark dorsal stripe from occiput to tail, a lateral one on each side along the flanks, nearly concealed by the light tips of the hair; intervals between the stripes lighter; hairs on body brownish yellow, or hoary at tips; parts around ears dusky; legs approaching black; muzzle pale. There are some which differ in color from the description given, but all belong to the same species. This bear is found extensively in California along the foothills of the Coast and Cascade Ranges, wherever oaks and manzanita are found, for a great portion of their food consists of acorns and the berries of the latter. The manzanita, which is peculiar to the flora of the Pacific coast, derives its botanical name (*Arctostaphylus glauca*) from its association with this animal, *arktos* signifying bear in Greek. To procure the fruit of this shrub bruin will travel far and face many dangers. The Grizzly Bear brings forth from one to three cubs about the middle of January. At birth the young are said to be very small, scarcely larger than puppies. They grow rapidly, however, but remain with the mother all through the summer. It is even said that they associate with the dam until she is just about to bring forth again.

In Oregon and California this Bear is said to be found as far north as the parallel of forty degrees, but to be scarce or not at all known beyond forty-two degrees. Its principal habitat in Oregon is in the Klamath Basin, in which are situated the now famous lava beds. It is but little hunted, owing to the sparseness of population there and the danger of the amusement. The last attempt at a chase resulted disastrously to one of the parties, the Grizzly having overtaken and killed him with one powerful stroke.

On the Pacific Coast the hunting of the Grizzly is generally conducted, where the nature of the ground will permit, on horseback. A pack of mongrel dogs trained for the purpose, are sent through the jungle or thickets where the bears are supposed to be feeding. They soon strike the trail and following it, drive him into open ground, when the nearest hunter gives the signal to the others of the party, who soon come up, and a general fusillade is opened and continued until bruin is killed or disabled. The chase is attended, if the animal be the dreaded Grizzly, with considerable excitement, and no little danger, for "Ephraim" is very nimble and active when aroused, and it takes a mustang of some speed and a rider of skill to evade his onward rushes. A horse unaccustomed to the sight of a bear will become unruly, and throw a poor horseman, who is then at the mercy of the monster. The Grizzly can easily overtake a man on foot, but as it is, unlike the other varieties, unable to climb trees, safety is often sought among the branches. Even then, however, the pursuer keeps the pursued in a state of siege until night, or the timely arrival of his comrades relieves him from his uncomfortable and hazardous position.

Greasers, Western vernacular for Mexicans, when they can find a Grizzly feeding on open ground, will sometimes capture him with their *riatas*, one horseman holding him by the head or a fore-leg, while another attends to his hind-legs. While stretched in this way he can easily be bound by others of the party, and is carried in triumph to the village, there to be pitted, at the next *fiesta*, against some savage young bull. The operation, however, is not always so successful, and sometimes the bear gets off with half-a-dozen ropes trailing behind him.

We have met several of these animals throughout the Western States and Territories in a semi-domesticated state, but in no place

did we see them so gentle as to bear too much familiarity. When the male and female are caged together they are incessantly quarrelling, especially at feeding time. Gallantry seems to be unknown to the burly male at such times, for he will attack his companion in the most vicious manner to recover even the smallest morsel of food. There is a rude but significant word in the Saxon to express the highest type of selfishness, namely, "hoggishness," yet bearishness would be more literally correct, for the *Suidæ* are generous in comparison to the monarch of this continent.

Bears are, in our estimation, contemptible creatures, not fit for food. Their diet is too varied. In the spring they dig up ants' nests and devour the eggs and inmates, catch frogs, and eat with relish any carrion that can be picked up. The summer is devoted to the untiring pursuit of mice and beetles, and a huge creature weighing a thousand pounds gives his whole time and energies to the capture of such game as this. When the berries and nuts are ripe the bear's food is delicate enough; but, although we have occasionally been obliged to eat bear meat or go hungry, we would vastly prefer good tough government mule.

BLACK, BROWN, OR CINNAMON BEAR.

Ursus americanus.—Pallas. (♀ var. *cinnamoneus*).

ONLY two species of the genus *Ursus* are found within the limits of the United States. These are the Grizzly, the largest and most powerful of its family, and the Black Bear, from which the Cinnamon Bear of authors is by some held to be distinct. Old hunters however say that they have found both Brown and Cinnamon cubs in the same litter with Black ones, and no distinctions except color seem to have been established between the Black and Cinnamon Bears. We notice an analogous occurrence among the squirrel-tribe, the grey and black having been proved to be identical. The question however need not be discussed here; an able authority will soon give an opinion on the subject, and we await his dictum.

The Black Bear is peculiar to no particular section of North America but is found from Maine to Texas, from Florida to Washington Territory. It is least abundant or perhaps is not found at all on the high dry plains of the far west, for it is an animal of the woods and swamps, while its cousin the Grizzly prefers the steep mountain side with its covering of rocks and "down timber," or wanders through the plains and open river valleys in his search for roots, mice and beetles. Nowhere is the former more abundant than in the dense swamps of the Southern States, and it seems to know right well that among these tangled canebrakes it will find safety from pursuit as well as abundance of food. The Black Bear is but little more than one-quarter the size of an adult Grizzly, and, as his name implies, is throughout of a shining black color. The muzzle, however, is usually tan color and sometimes specimens are killed which have a white mark on the throat. The so-called Cinnamon Bear varies in color from a deep rich brown to a light yellow and is chiefly confined to the

mountain regions of the West; a yellow bear from the Carolinas is however mentioned by some authors, and may be referred to this variety.

This species, like the Grizzly, is truly omnivorous and every eatable thing that comes within reach is eagerly devoured. In severe winters in the Southern States the Bears are sometimes quite troublesome to the farmers, devouring large numbers of sheep and hogs, and occasionally making off with a calf. Such depredations, however, are quite unusual, and Bruin is usually well contented if he can be allowed in peace to gather mast, to catch frogs in the brooks, and to tear up rotten logs and prey upon the ants and beetles which he may find in them. It is in fall that these animals live in clover, so to speak. When the nuts and berries are ripe and the bees are putting up the last of their honey, and the corn is in the milk tender and delicious, and the wild fruits, grapes and persimmons and pawpaws are ripe, then truly does the Black Bear laugh and grow fat, so fat indeed that he can scarcely run. Then, too, does the hunter collect his dogs, and summoning his neighbors, a jolly party proceed to the vicinity of the swamp which harbors the Bear. The dogs are sent in and their cry soon notifies the horsemen of the direction which the game is taking. All hands follow as fast as the nature of the ground will permit, and before long the barking of the dogs conveys the information that the Bear has sought safety among the branches of a tree. On the arrival of the hunters the tree is either cut down so that the bear and dogs may fight it out on the ground, or, as is most frequently the case, a rifle ball terminates the sport as far as this particular animal is concerned.

The Black Bear is shy and timid, and avoids a rencontre with man if possible. When brought to bay, however, he will make a show of fight, and if wounded may be dangerous. As a rule, however, the chase of the Black Bear is devoid of excitement and attractive danger, and it is little hunted except as mentioned above in the South. The man who has killed his Grizzly has accomplished a feat of no small magnitude and may justly feel proud of his prowess; but the Black Bear is very much smaller game.

The Black Bear produces in early spring two or three cubs

which she cares for with the greatest affection, and in defence of which she will sometimes even fight.

In some localities in the Rocky Mountains and Sierra Nevadas these animals are enormously abundant. In the berry season their presence can be detected almost every where in the forests by the number of berries which they have stripped off the bushes, and the torn condition of the soil in many places where they have been digging for roots. In the summer this animal is also a frequenter of thickets where a species of buckthorn grows, as it devours the fruit of this tree with great avidity, though to the *genus homo* the fruit proves a most violent cathartic. The animal is but little hunted, notwithstanding its numerical strength, owing undoubtedly to the cheapness of its fur, or else to the difficulty of finding its domicil during the season of hibernation, when its wardrobe is in the best condition for mercantile purposes.

In the Adirondacks and the woods of Maine, the Black Bear is abundant, and we have often tracked them to their nooning places and jumped them out of warm sunny spots by the side of old logs where they were taking their *siesta*. The most agreeable way of hunting this species is, however, that first mentioned, and it is also by far the most successful. Black Bears are trapped in large numbers for their hides and are in some localities taken with set-guns which they discharge in their efforts to secure the bait.

POLAR OR WHITE BEAR.

Ursus maritimus.—Linn.

THE Polar Bear inhabits the extreme northern portions of both continents. In size it almost equals the Grizzly bear, attaining a weight of from one thousand to fifteen hundred pounds. It differs in many respects from other bears, and some naturalists have regarded these differences as of generic value, and have formed for it the genus *Thalassarctus*. A discussion of the points in which it is unlike its relatives, has however, no place in this work, and we prefer to retain for it, for the present at least, its Linnean name.

The head of the Polar Bear is flattened, the profile being almost a straight line. The neck is twice as long and thicker than the head; the contour of the body is elongated, the paws are of huge proportions, and thickly covered *on the under side* with coarse hair, doubtless to keep them from slipping on the ice; and the toes are armed with formidable claws. The hair all over the body is of a uniform yellowish white or straw color, while the eyes, nose, and claws are jet black. The mouth is somewhat small, armed with large, strong teeth, which seem well calculated to catch, cut and tear tough seal meat, the White Bear's natural food.

The Polar Bear has been found in the highest northern latitudes ever reached by navigators. It exists on all Asiatic coasts of the frozen ocean from the mouth of the Obi eastward, and much abounds in Nova Zembla and Spitzbergen, though it has not been observed on any of the islands of Behring's Strait; yet it is found in Greenland and Labrador, as well as along the coasts of Baffin's and Hudson Bay.

In confinement the Polar Bear is savage and irritable, and visitors at menageries are generally impressed by the morose and unsociable temper of these animals. They never play together, but are continually quarrelling and fighting, and it is but a short

time since one of a pair in the Zoological Gardens at Cologne killed his mate after a savage combat which lasted for a long time.

The young of this species, generally two in number, are brought forth in December while the mother is snugly ensconced in some crevice in the rocks beneath a warm blanket of snow. The female displays the most devoted attachment for her young, and will suffer herself to be killed in their defence. In confinement, however, the mother usually devours her cubs shortly after birth, so that in London at the Zoological Gardens the young are removed immediately after birth and are given to a bitch to rear.

The White Bear is wholly carnivorous in his diet, and preys upon seals, fish, the carcasses of whales, and sometimes even upon the huge walrus. As might be inferred from his habitat, he is not a tree climber. In the water, however, he is at home, almost as much so as the seal. White Bears have been killed on the ocean forty or fifty miles from land, and that too at a time when there was no floating ice upon which they could rest themselves. The following account of the manner in which these animals capture seals is given by Capt. Lynn :—

"The Bear, on seeing his intended prey, gets quietly into the water, and swims to leeward of him, from whence, by frequent short dives, he silently makes his approaches, and so arranges his distances that at the last dive he comes to the spot where the seal is lying. If the poor animal attempts to escape by rolling into the water, he falls into the bear's clutches; if, on the contrary, he lies still, his destroyer makes a powerful spring, kills him on the ice, and devours him at leisure." During the summer these bears spend much of their time on the ice-floes, swimming from one to another; they lodge in the large crevices; and in winter, when it is always night, when the ice-floe is as stable as land, they bed themselves deep in the snow, and remain in a state of torpidity until the welcome sun returns to gladden the scene.

The great size and strength and the ferocity of the Polar Bear have furnished themes upon which many a writer has dilated at length, and all accounts of Arctic exploration contain narratives bearing on the habits of this species. From a great mass of material the following anecdote from the pen of Mr. Lamont, is selected.

"The bear was surprised on the shore, where the soft mud

was intersected by numerous little channels and much rough ice left aground by the tide. This seemed to embarrass her very much, as the cubs could not jump over the channels. The old bear became very anxious and uneasy at our approach; but she showed great patience and forbearance with her cubs, always waiting, after she had jumped over a channel, until they swam across, and affectionately assisting them to scramble up the steep sides of the rocky places. Nevertheless, the mixture of sticky mud with rough ice and half-frozen water soon reduced the unhappy cubs to a pitiable state of distress, and we heard them growling plaintively, as if they were upbraiding their mother for dragging them through such a disagreeable place. The delay was fatal to the old bear. After she was dispatched, and the cubs, which were about the size of colly dogs, bound together by a cord, they began a furious combat with one another, and rolled about in the mud, biting, struggling, and roaring until quite exhausted. Here I am sorry to have to record the most horrid case of filial ingratitude that ever fell under my observation. Without doubt the mother had sacrificed her life for her cubs. She could have escaped without difficulty if she had not so magnanimously remained to help them. When, however, we proceeded to open the carcass of the old bear for the purpose of skinning her, the two young demons of cubs, having by this time settled their differences with each other, began to devour their unfortunate and too devoted parent, and actually made a hearty meal off her. When we had finished skinning her, the cubs sat down upon the skin, and resolutely refused to leave it; so we dragged the skin, with the little animals upon it, like a sledge, to the boat. After another tussle with them, in the course of which they severely bit and scratched some of the men, we got them tied down under the thwarts of the boat, and conveyed them on board the sloop."

RACCOON.

Procyon lotor.—Storr.

THE Raccoon is one of the most generally known of American Mammals, and is of frequent occurrence throughout the United States. Its total length is about three feet, of which the tail occupies one-third. In color it is pale grey, somewhat mottled with dusky cloudings. The face is lighter, but there is a black patch upon the cheeks and another behind the ear. The tail has five well marked black rings and a black hip, the interspaces between these markings being pale yellow.

Although as an article of food there is great diversity of opinion concerning the merits of the Raccoon, yet he is hunted considerably for the sport alone, and some, not above it, enjoy also the pleasure of a palatable coon stew. Unlike the foxes, the raccoon is at home in a tree, although not possessing the agility of a squirrel. In fact this is the usual refuge he seeks when danger is near, and not being very swift of foot, it is well they possess this climbing ability. Their abode is generally in a hollow tree, oak or chestnut, and when the juvenile farmer's son comes across a *coon-tree*, he is not long in making known his discovery to friends and neighbors, who forthwith assemble at the spot, and proceed to fell the tree containing his coonship. At this juncture the coon loses no time in scrambling out of his ruined home, but a half score or more of mongrel dogs, of terrier, hound and bull extraction, soon accomplish his destruction. But let it be distinctly understood he does not yield up his life gracefully and without a struggle, for he often puts many of his assailants *hors de combat* for many a day, his jaws being strong and his claws sharp. The Raccoon breeds in a hollow tree, and the young are generally from four to eight in number, pretty little creatures at first, about as large as half-grown rats. They are as playful as kittens and may be raised to be

docile and tame, but their nomadic proclivities are so strongly inbred that they will, unless chained, wander off to the woods and not return. Coons are hunted throughout New England quite extensively and also down south. They are ranked next in merit to the opossum by the sable autocrats, who take great delight in following the broad-footed mammal. When the late September days are on us and the moon is at its fullest quarter, the yellow stalks with their milky ears of corn still standing—then is the season for the hunters to assemble, and with their coon dogs, from one to three in number, to start for the borders of swamps skirting the corn-fields, in search of this member of the ring-tailed family. He is emphatically a night animal, and never travels by day; sometimes being caught at morning far from his tree and being unable to return thither he will spend the hours of daylight snugly coiled up among the thickest foliage of some lofty tree-top.

The corn is still in the milk and in a condition most attractive to the Raccoon. If he is not started in this locality, look for him along the banks of the lily pond near by. He is exceedingly fond of the bull frogs and catfish which here abound, and will travel far for these dainties. As soon as the trail is struck, off goes "Tige" or "Bose" and the only thing left for us is to sit and wait for the signal. The Coon is somewhat adroit in his attempts to baffle the dogs, and he will often enter a brook and travel for some distance in the water, thus puzzling and delaying his pursuers not a little. Soon a distant barking reaches our ears, coming from a direction quite different from where we had anticipated, showing that the game has made good use of time and tactics, but is at last treed.

After a tedious tramp o'er hill and dale, we arrive at the foot of a gigantic pine, among the topmost branches of which our quarry is concealed. The youngest and most nimble of the party is appointed to swarm up the tree and shake off our victim. As the climber nears the object of his pursuit, the latter retreats to the extremity of a branch, and finally in desperation springs wildly outward and strikes the earth, rebounding to his feet apparently unharmed. Upon him then, the dogs vent their rage.

A good sized coon will weigh from fifteen to twenty pounds. Raccoons are frequently caught in steel traps, and exhibit much

less sly cunning than the fox in evading the gins which man prepares for their capture. They will eat anything, being particularly fond of eggs, meat and green corn, frequently holding a "swarry" in the hen-house and cornfield the same evening.

Nocturnal coon-hunts frequently result disastrously to other animals; and occasionally a party of hunters will return with a varied bag, without coon perhaps, but including skunk, woodchuck, cat, etc. Sometimes, too, the dogs will go off on a fox trail, and in that case may not be seen again for twenty-four or thirty-six hours.

MUSK OX.

Ovibos moschatus.—Blainville.

THE Musk Ox is confined to the barren grounds of America, north of the sixty-fifth parallel of latitude. In spring it wanders over the ice as far as Melville Bay, or even Smith's Sound, where a number of its bones were found by Dr. Kane. In September it withdraws more to the South, and spends the coldest months on the verge of the forest region. It subsists chiefly on lichens and mosses. It runs nimbly, and climbs hills and rocks with ease. Its fossil remains, or those of a very similar species, have been discovered in Siberia. At present it is exclusively confined to the New World. In size it is about equal to a two year old cow, weighing when fat from six to seven hundred pounds. The horns are very broad at their origin, cover the whole crown of the head and the brow, and touch each other for their whole breadth from before backwards. For a short distance from the base they grow directly outward, and then becoming rounded and tapering, curve downward between the eyes and ears until they reach the angle of the mouth, when they turn outward and upward to about the level of the eye. The horn is dull white and rough on its basal half but becomes smooth shining and black toward the point. The general color of the hair is dark brown, but upon the neck and shoulders it fades to a grizzled hue, while on the centre of the back is a patch of soiled white. The muzzle, instead of being naked as in the genus *Bos*, is covered with short white hair. The tail is but a few inches in length and is completely concealed by the long shaggy hair covering the hips. The legs are clothed with a coat of short brownish white hair, and, owing to the great length of the coat on the throat, chest, sides and belly, seem very short in proportion to the size of the animal. There is an abundance of fine short ash-colored wool beneath the hair covering the body. The female

Musk Ox is much smaller than the male and has smaller horns which do not touch at their bases.

The Musk Ox is scarcely to be regarded as a game animal, its habitat being such as to save it from pursuit by those who hunt simply for pleasure. It furnishes however much of the fresh meat which is obtained by arctic explorers, and is hunted as well by the Esquimaux and the Indians of the far North. These animals are usually killed by stalking them and it is said that if the hunter keeps himself concealed the Musk Oxen will not run but will permit him to shoot until all are killed or until they are alarmed by the sight or smell of his person. The bulls are somewhat irritable, and it is said that the Esquimaux take advantage of this disposition "for an expert hunter, having provoked a bull to attack him, wheels around it more quickly than it can turn, and by repeated stabs in the belly, puts an end to its life."

Remains of the Musk Ox are still rare in collections, and those who are fortunate enough to meet with this species in its native haunts should not fail to preserve both the skin and skeleton of those which they may kill, for the benefit of some of our institutions of learning. Owing to its arctic habitat but little is known of its mode of life, and a careful and trustworthy account of its habits and present range would be a most valuable contribution to our knowledge of North American mammals.

BUFFALO.

Bos Americanus.—Gmelin.

So much has been written during late years about the Buffalo, that almost every one is familiar with its history, and it is well that it is so, for he will very shortly exist only in the annals of the past.

The American Bison is known by but one name throughout the continent of America, being rarely spoken of by any other appellation than that of the Buffalo.

Since the comparatively recent enormous exodus of population from the eastern portions of our country, and influx of the same into the formerly sacred and forbidden territories of the red man, the natural history of that vast territory west of the Missouri has been made more definite and clear, and its resources developed. In the acquisition of our knowledge of the former, the Buffalo has played the most important part.

Fossil remains of a Bison of prehistoric times have been found in the same country now occupied by the present comparatively diminutive species. These gigantic animals were probably six to eight times the size of our present species and must have been fit contemporaries of the *Mastodon*, and the enormous sloths which in Post-Pliocene times inhabited our continent. The prehistoric man, to hunt an animal of these proportions, should have been as large as the fabled giants. In former times the Bison occupied the major part of the North American continent; their migrations extending from Mexico on the South, far up into the present British Possessions, and their eastern and western limits being the States of California and Oregon, Virginia and the Carolinas respectively. But our authentic history of the animal dates back only to the earlier part of the past century when it had been driven west of the Mississippi. The range of the Buffalo in 1830, had been nar-

rowed to the following boundaries: the plains of Texas on the south to beyond the British line, from the Missouri and upper Mississippi on the east to the eastern slope of the Sierra Nevadas on the west. Every portion of this immense area was either the fixed home of the Bison, or might be expected to have each year one or more visits from the migrating millions.

The latest determination of the range of the few remaining Bison, 1876, fixes it mainly within the limits of the United States, and confines it to Texas, Colorado, Kansas, and the Indian Territory on the south, and Montana and Dakota on the north. The rapid and appalling diminution in their numbers and range is owing entirely to their wanton and useless destruction by skin-hunters and pseudo sportsmen.

The general *ensemble* of the Bison is so well known to all, that a description is hardly necessary. Owing to his great size, shaggy mane and hump, vicious eye, and sullen demeanor, he possesses the appearance of being a formidable adversary, but in truth, he is the mildest, most inoffensive, stubborn and stupid of all the western mammals. If not alarmed by sight of the enemy, he will stupidly watch his companions fall one by one, until the whole herd are killed or wounded. When in their migrations, they select the most easy and available routes, and a well defined buffalo trail will always be found the best path for the horseman. In crossing streams they show little instinct and no intelligence; the foremost plunge recklessly in and, where quicksands exist, or the current is too swift, many perish, but their fate does not deter those behind from attempting the passage, and whole herds may be annihilated in this way. Although they follow in migrating the easiest routes, yet they by no means lack the ability to travel over rough or bad ground, and can descend or ascend a cliff, which for man to attempt, on a horse or off one, would be certain destruction. The habits of the Bison are almost identical with those of domestic stock; very little fighting, however, takes place among the bulls, even during the rutting season, which occurs in July. The young are brought forth in April, and the female bears one calf; the mother seems to evince little affection for her offspring, and its protection devolves almost wholly upon the bulls. At the least fright, she will scamper off, utterly

unmindful of the helpless young, who would soon fall an easy prey to wolf or coyote, were it not guarded by the bulls, who fight fiercely for the safety of their offspring.

The following story is related by an army officer, and bears upon this point: While riding into camp alone one night, he observed some six or eight Buffalo bulls on the prairie arranged in a compact circle with heads facing outward; all around, and at a little distance from the ring, sat numbers of grey wolves eying the Bison. At a loss to account for this singular sight, he drew up to watch their movements. Soon the Buffalo separated, and now a young calf, evidently newly born, was seen in centre of the group. They trotted away some hundred yards, meanwhile protecting the object of their solicitude, on all sides, the wolves moving along with them. Soon the young one becoming fatigued, lay down, when the bulls stopped again, forming the same impassable barrier against their ferocious enemies. Thus they escorted their ward back to the main herd.

When feeding, the cows and calves occupy the middle space, the bulls forming as it were the circumference of an enclosing circle. When attacked, however, they lose all control of themselves and dash hither and thither in every direction. If governmental protection can be obtained at all for the Bisons, it should at least save them from wicked and indiscriminate slaughter during the spring and summer, while they are breeding and rearing their young. But with regard to buffalo protection another and better method for saving the few remaining herds from utter annihilation may be suggested; namely, by forming a buffalo reservation.

In the Yellowstone National Park we have the necessary territory, and it is already stocked; but the skin hunter, that ruthless destroyer of game, must be kept at a distance, if we would hope to save this species. This section of territory is by law forbidden ground to the hunter, and could the statute be enforced, the buffalo, which at present exist in considerable numbers in this region, would have an opportunity to increase, and might endure there long after their recent prairie range has become a region of smiling wheat farms and well stocked cattle ranches. The bill setting aside the Yellowstone Park as a Government reservation says that the Secretary of the Interior shall "*provide against the wanton*

destruction of the fish and game found within the park, and against their capture or destruction for the purpose of merchandise or profit."

Then again if the *wild* buffalo must become extinct, why not make preparations for it. An animal which in all essential respects agrees so closely with the domestic cattle must surely prove of vast importance to the farmer and stock raiser, if its domestication were but systematically attempted. We have at various times seen in Montana, Nebraska and Kansas young buffaloes running at large with the herds of domestic cattle, and in their actions resembling in all respects their tame companions. With the cattle they would wander off for days or weeks to distant parts of the range, returning from time to time, and being quite as gentle and docile as the other individuals of the herd. When these calves approach maturity, what more natural than that the males should be broken to the yoke? The owner is not slow to avail himself of their enormous strength, and teams of young bulls are by no means uncommon in the vicinity of the buffalo range. Their power and endurance are undoubted, though their temper is not, perhaps, of the best. In fact it is said that if they desire to go in any particular direction, or not to go at all, nothing that the driver can say or do, will have the slightest effect in changing their determination. Such little eccentricities as these, however, would no doubt be overcome after a generation or two of domestication, or might be more immediately modified by a cross of domestic blood. The old buffalo ranges are filling up with cattle, and by the importation of blooded bulls the quality of the stock is being continually improved. From these plains a large portion of the beef for Eastern and European consumption will ultimately be derived. Before the buffalo wholly disappears some intelligent effort should be made for inter-breeding on a large scale, so that ere the last of the shaggy wild brutes have yielded up his life there shall have been infused into our western cattle the hardy blood of their obliterated relatives.

Of the modes of capture practiced in hunting the Bison the two most in vogue are still hunting, confined for the most part to that great exterminator, the skin hunter, and hunting on horseback, the legitimate and only sportsmanlike manner of pursuit. Owing to

the incredible decimation in the ranks of the buffalo within the past few years, every cruel and cowardly device is now resorted to, to accomplish their destruction. Herds are sometimes kept days from water by the hunters in some sections, notably that south of the Platte, where the precious and necessary fluid is comparatively scarce, and the rivers few and far between. The animals at last, from sheer desperation, rush to the water, and are met by the death-dealing bullet, preferring an end in this way to the slow pangs of an all torturing thirst. At night, fires are built along the streams to keep them off, and the poor beasts are in one way and another kept from the water and killed off until herd after herd disappear.

The desire to kill seems to blind many men to all other considerations. Animals are shot down and left, with the exception of the tongue perhaps, entire, to rot unskinned, merely because the hunter wishes to kill as many as possible before they get off. In his recent work, Colonel Dodge gives some startling computations of the appalling and useless slaughter of the Bison within the last six years. He gives it as his opinion that one skin in market represents from four to six beasts killed, and we think these figures not too large. Still hunting should be resorted to only when a camp is in pressing need of fresh meat. Still it is always difficult to curb the ardor of the young tyro, whose sole desire seems to be to kill as many buffaloes as possible for no other reason than that he may relate his stories to admiring friends, on his return to the settlements. The still hunter, if he be an adept and understands the habits of the game he pursues, may very soon wipe out of existence a moderately large herd of buffaloes.

He will take into consideration the direction of the wind, the lay of the land, and other minor points ; he will use creek bottoms, gulches and ravine approaches in his stalking. When within shooting distance he commences to kill off the herd one by one at his ease, meanwhile, keeping himself entirely concealed from view. The Bison stupidly watch their comrades stagger and fall, but do not offer to run. They are startled by the rifle report, but are unaware in which direction to look for an enemy. The skin hunter strips the animals of their hides, and leaves the carcasses to decay or become the food of wolf and jackal. The mortality of the buffalo from the slaughter of Indians, but more particularly white

hunters, is simply frightful, and when it is stated by one who knows that during the three years of 1872-3-4 over *four and a half millions* of these beasts were slaughtered, it can be readily imagined by the most uninformed that the species will soon cease to exist.

Hunting from horseback is followed in the same manner by whites as practiced by the Indians. It was our good fortune a few years ago to accompany the Pawnee Indians on their grand annual Buffalo Hunt, and a short description of how the hunt was conducted after the herd was discovered will suffice to give the reader an idea of a Bison Hunt on horseback.

After the scouts had brought into camp notice of the proximity of a herd, the men removed the saddles and bridles from their horses, substituting for the latter a strip of rawhide around the lower jaw. They also stripped off their own clothing and stood forth as naked as when they came into the world, save for a breech clout and a pair of moccasins apiece. Their bows and arrows they held in their hands. At a given signal they started off, at first on a slow trot, but gradually increasing their speed until the trot became a canter, and the canter a swift gallop.

At length we reach the top of the last ridge and see the buffalo lying down in the creek bottom a mile beyond. The place could not have been more favorable for a surround had it been chosen for the purpose. A plain two miles broad and intersected by a narrow stream, is encircled by high bluffs, up which the buffalo must toil slowly, but which the more nimble ponies can ascend almost as fast as they can run on level ground. As we commence to descend the face of the bluff, the pace is slightly accelerated. The Indians at either extremity of the line press forward, and its contour is now crescent like. Men and horses commence to evince more excitement, but the five hundred buffaloes reposing below us do not seem to notice our advance. A few wily old bulls, however, that occupy the tops of the lower bluffs, take the alarm and commence to scud off over the hills. At last when we are within half a mile of the ruminating herd a few of them rise to their feet, and soon all spring up and stare at us for a few seconds; then down go their heads and in a dense mass they rush off toward the bluffs. As they rise to their feet the leaders of our party give the signal, and each man puts his horse to its utmost speed. The

fastest horses are soon among the last of the buffalo, but still their riders push forward to try and turn the leaders of the herd, and drive them back into the plain. This they in part accomplish, and soon the bottom is covered with the flying animals. They dash madly along, and the trained horses keep close to the buffalo without any guidance, yet watch constantly for any indication of an intention to charge, and wheel off, if such intention is manifested. The Indians discharging arrow after arrow in quick succession, ere long bring down the huge beast, and then turn and ride off after another.

Ourself and comrades having brought down three or four apiece, come together on a little hill that overlooks the valley and become spectators of the scene. Soon the chase is ended, and the plain is dotted with dark objects over each of which bend two or three Indians busily engaged in securing the meat. Every ounce of this will be saved, and what is not eaten while fresh will be jerked and thus preserved for consumption during the winter. How different would have been the course of a party of white hunters had they the same opportunity. They would have killed as many animals, but would have left all but enough for one day's use to be devoured by the wolves or to rot upon the prairie.

The Mountain Bison differs in various respects from the Bison of the plain, notably in size. His legs are shorter and stronger, apparently eminently fitted to his habits, which necessitate considerable climbing.

The animals are not plenty although they are said to have been so once in those happy past days, which are always the favorite theme of the "old residenters," but he is still to be found in the Yellowstone region in considerable numbers. They inhabit for the most part, inaccessible cliffs and the dark defiles of the mountains. They are extremely shy, and possess much more intelligence in avoiding danger, than their lowland brother. They are incredibly active in scaling or descending precipitous places, and are much more agile than their bulk and clumsy appearance would seem to indicate. There seems to be no good reason for regarding the Mountain Bison as specifically distinct from the Buffalo of the plains. The differences seem to be only those which are characteristic of an inhabitant of the woods and hills, as distinguished from a dweller on the plains and lowlands.

THE MOUNTAIN GOAT.

Aplocerus columbianus.—Coues.

THE White Goat is confined to the loftiest peaks of the Rocky Mountains: it is not known south of Colorado, and is probably rare south of Washington Territory, but is found to the northward as far as Alaska.

In size this species about equals the domestic sheep, which it somewhat resembles in shape, but the long spines of the dorsal vertebræ give it the appearance of having a slight hump just behind the shoulders, and it is thus not particularly graceful in form. The horns are from six to eight inches long, awl shaped, ringed at the base and bending slightly backward. In color they, with the hoofs, are shining black like polished ebony. The hair is long except on the face and lower legs, and is underlaid by a fine soft wool, the whole fleece being snow-white in color. The chin is ornamented with a beard-like tuft of long hair, as in the common goat.

Notwithstanding its common name, this animal is regarded by naturalists as an antelope, and not a goat at all. It is almost never hunted, and even in those districts where it is most abundant, it is one of the rarest of mammals. Besides this, it is said to be most shy and vigilant, and is not to be approached unless some accident favors the hunter. The true home of this species is among the loftiest pinnacles of the snow-covered mountains, above timber line where no vegetation is to be found save mosses, lichens and a few Alpine shrubs and grasses. Here the goats live a quiet, peaceful life, undisturbed except by an occasional hunter, from whom they ordinarily escape without difficulty by fleeing to the neighboring heights. The few that are annually killed are only secured after the most toilsome pursuit. As their flesh is dry and tasteless, they are rarely disturbed by the Indians, who can always obtain better meat at a less expense of time and labor.

Like the Musk Ox, the Mountain Goat is extremely rare in collections, and their skins and skeletons are quite valuable and should always be preserved.

It is reported that several years since, in Montana, five individuals of this species were captured alive. The hunters who were provided with dogs are said to have approached as closely as possible to the herd, and then to have slipped their canine assistants, remaining concealed themselves. Before the goats took the alarm, the dogs were so nearly upon them that they took refuge on some high and broken fragments of rock, where they stood at bay. Here their attention was so occupied by their immediate assailants, that the hunters were enabled to surround them and secure five with their *riatas*. This account would seem to indicate that the Mountain Goat is not a particularly fleet creature, and this supposition is confirmed by a study of the skeleton ; the animal seems fitted more for climbing than for running, and to possess great endurance rather than great speed.

Various absurd stories are told by hunters of the wonderful power which these animals possess of leaping from great heights and alighting in safety on their horns. That these tales have no foundation in fact, any one who has examined the skull of a Mountain Goat will readily comprehend. The species is also said to prefer death to capture, a statement which is on a par with the one just referred to. If one of these animals throws himself over a precipice, it is not because he wishes to spite the hunter, but because in his fear of his pursuer he takes an unusually dangerous leap, or makes an effort to pass over some path where the foothold is too precarious even for such a sure-footed climber as he.

The females of this species are said to bring forth their young in June, but the period of gestation is not known. It is said that in winter, when the tops of the mountains are deeply covered with snow, and food is inaccessible, these animals descend to the timber and remain there until the heights become partly bare in spring. On the whole, but little is known of the habits of this species, but it is stated, and no doubt truly, that the race is far less numerous now than in former days.

BIGHORN; MOUNTAIN SHEEP.

Ovis montana.—Cuvier.

THE Bighorn is an inhabitant of the mountains of Western America, and is found in greater or less abundance in suitable localities from the Missouri River to the Pacific Ocean. It is said to be abundant in New Mexico and Arizona, and occurs in Southern California, but is probably not found in any numbers south of the United States. Its northern range extends as far as Alaska, and it is reported to be more abundant north of the 49th parallel than farther south. Although most numerous in the Rocky Mountains, the Sierra Nevadas and the Coast Range, this species is by no means confined to the mountains. It occurs also among the rugged *Mauvaises Terres* or Bad Lands of the White River, the Little Missouri, Yellowstone and Upper Missouri, and seems to delight in these grey, desolate and arid wastes. Indeed, any very rough country answers all the requirements for the Bighorn, and it demands only that there shall be steep and difficult heights to which it may retreat when pursued.

This species has been aptly described as having the head of a sheep with the body of a deer. In size, however, it exceeds the largest deer, and a full-grown individual is said to weigh three hundred and fifty pounds. The following measurements of an old male are given by Sir John Richardson in his Fauna Boreali Americana:—Length to end of tail six feet, height at shoulder three feet five inches, length of tail two inches, length of horn along curve two feet ten inches, circumference of horn at base one foot one inch, distance from tip of one horn to tip of its fellow two feet three inches. The female is somewhat less in size than the male, the horns are much smaller and are nearly erect, having but a slight inclination outward and backward. They somewhat resemble the horns of a common goat. The general color of the Mountain

Sheep is a pale wood brown, dark in summer and lighter in winter and spring. The posterior portions of the legs and belly, and a triangular patch upon the buttocks, are white. The coat is soft to the touch, though the hair resembles that of the Caribou, and in a less degree that of the Pronghorn Antelope. It is short, fine and flexible on its first growth in autumn, but becomes longer as the season advances until in winter the hair is so thick and close-set that it stands erect. As the winter advances the dark tips of the hair are rubbed off, so that by spring the old males are quite white. A fine wool covers the skin under the hair.

The Bighorn is very graceful in all its movements, and the lightness and agility with which it scales the steepest bluffs, runs along the narrowest edge on the face of a precipice, or leaps from rock to rock in its descent from some mountain-top, are excelled by no animal with which we are familiar. Like all other wild ruminants, they feed early in the morning, and they retire during the middle of the day to points high up on the bluffs or mountains, where they rest until the sun is low in the heavens, when they proceed again to their feeding grounds. Except during the rut which takes place during the month of December, the old rams are found in small bands by themselves, the females, lambs and young rams associating together in companies of from five to twenty. Occasionally much larger herds are seen, but this only in a country where they have not been at all disturbed by man.

The successful pursuit of this species requires the exercise on the part of the hunter of the utmost patience and deliberation : no animal is more shy and wary than the Bighorn, and if it receives the slightest hint of the enemy's presence, it is up and away, not to be seen again. No tyro in still hunting will succeed in securing one of these vigilant climbers, and we have seen many a hunter of experience who had yet to kill his first mountain sheep. The difficulties which attend the capture of this species, however, only serve to render its pursuit more attractive to the ardent sportsman, and when in a country where it abounds, buffalo, deer, antelope and even elk, are likely to be neglected for Bighorn. The flesh too is most delicious, and is regarded as far superior to any meat which the West affords. We know of no more delicate dish than is afforded by a yearling ewe in good order, seasoned with that won-

derful sauce furnished by the free open air life of the plains and mountains. The glory of "fat cow" pales, and even elk and black-tailed deer meat hide their diminished heads before the rare toothsomeness of a juicy saddle, or the dripping ribs of a young and tender Bighorn.

To hunt the Mountain Sheep successfully the candidate for honors should have had some experience with other large game, should have the patience and endurance possessed only by the most enthusiastic of sportsmen, and should be a fair shot with the rifle. In the grey of the morning, before attempting to look for his game, he should seek the highest ground in his vicinity, whence a wide view of the surrounding country may be obtained, and from this point with the good glass that is an indispensable part of a hunter's outfit, he should search the little ravines and grassy meadows running down from the hills. The sheep are always on the watch for enemies from the lower ground, but rarely turn their glances to the heights, which, if disturbed, they will seek for safety; nor is the danger of being winded nearly so great when the hunter is above the game.

The chief object to be accomplished is to discover the herd before it is aware of your presence; after this the task becomes only a matter of the most careful stalking. All inequalities of the ground, all rocks and vegetation will be utilized by the skillful stalker who would approach within shot, and especially will the wind be regarded, for it is quite certain that if the band catch the scent of the hunter, his labor will all have been in vain.

The facility with which these animals descend the most abrupt precipices, and cross cañons of which the sides are apparently vertical, has given rise to the idea, vouched for by many an imaginative hunter, that they can throw themselves from great heights and striking on their horns can rebound uninjured, and land on their feet. The vast size of the horns in the male, together with the fact that these are often battered and splintered, has caused many to receive this statement as at least possible; but it is scarcely necessary to say that even if the animal's head could stand the shock, its neck would not. Besides this the story makes no arrangement for the manner in which the females and young males, whose horns are but little larger than those of a goat, shall descend the cliffs, yet any one

who is familiar with the species, knows well that these individuals are no less active and successful climbers than the rams. The splintered condition of the horns of the old males is due to their battles during the rutting season, and their play at all times of the year. The feet of the Mountain Sheep are precisely fitted for their life among the crags and precipices, and they seem to be able to cling to any surface which presents the slightest inequality. They can thus pass over dangerous places which would be certain death to any other quadruped except perhaps the White Goat.

As has been remarked, the rutting season is in December, and the young are believed to be brought forth in March, although in some of the best works on Natural History the time of birth is variously stated as May or June.

ANTELOPE.

Antilocapra Americana.—Ord.

THE Antelope inhabits the plains of the western portion of North America. It does not now exist east of the 100th meridian but occurs in suitable localities to the westward as far as California. Its northern range is bounded by the fifty-third parallel and it is found even south of the Rio Grande. It is essentially an animal of the plains, and is never found among timber, though abundant on many of the elevated plateaus which exist among the Rocky Mountains, in the great Interior Basin and toward the Pacific coast.

The horns of the Antelope are black and rise from immediately above the orbit upward and outward without any inclination forward or backward. About half way up a flat triangular process rises, pointing forward and outward, from which the animal has received the appellation "Prong Horn." The horns within two or three inches of their extremities curve sharply, either toward each other almost meeting over the head, or backwards like the horn of the Chamois. One specimen which has come under the notice of the writer, had the point of one horn directed inward and the other backward. There is no regularity in the way in which they point, but the tips are never directed either forward or outward. The general color of the upper parts of the body is a clear yellowish red which deepens on the dorsal line to a brownish black. The face and a spot below the ear are of the latter color. The under parts, with the posterior and inner surfaces of the legs, the cheeks, and ower jaw, two or three patches on the fore neck, the rump and tail are white. There are no false hoofs or dew-claws as in the genera *Cervus* and *Bos*. The length of the animal is about four and one half feet, and the height at the shoulders three feet.

On the vast plains which the Antelope inhabits, and which are often level and always destitute of timber, it might be imagined that this animal would be secure from the attacks of any enemy. But the little ravines, by which these prairies are so often intersected, furnish a cover for the still hunter, and in a few localities the Antelope are hunted with greyhounds. Then too the sentiment of curiosity is implanted so strongly in the nature of this animal, that it often leads him to reconnoitre too closely some object which he cannot clearly make out, and his investigations are pursued until the dire answer to all inquiries is given by the sharp "spang" of the rifle and the answering "spat" as the ball strikes the beautiful creature's flank.

The Antelope is a very wary animal, and although it will often permit the hunter to advance within 500 or 600 yards without manifesting any great alarm, it is a very difficult matter to approach within easy range after it has once noticed his presence. As soon as the first suspicion of danger crosses the mind of the game, it betakes itself to the highest point of the bluffs near at hand, from which coign of vantage it watches with the utmost intentness the movements of its pursuer. Let not the latter vainly imagine that if, by a careful flank movement, he shall succeed in putting a bluff between himself and the object of his pursuit, he may still approach within shooting distance. At the instant of his disappearance, the Antelope is off again to the top of another bluff, and when the hunter cautiously raises his head to shoot, the animal is still as far off as before.

In hunting the Antelope, and the rule applies to all large game, the hunter should endeavor to discover his game before it is aware of his proximity; if he can accomplish this, his success, if he be a skillful stalker and the ground is favorable, will be assured; if however the game has been made suspicious by seeing him, the chances against him are much increased. Should he discover a band before it has been disturbed, he will do well to bring his horse as near as possible to that spot from which he is to shoot, for an Antelope, though mortally wounded, will often run off for some distance and will then conceal itself in the nearest ravine with such care that the hunter will be unable to discover it. Unless the animal falls dead, the hunter should lose no time in

springing on his horse and following it. If the wound is a severe one and the horse fleet, the Antelope may generally be secured by this means, though often only after a long chase. If however it be but slightly wounded another herd should be sought without delay. Pursuit under these circumstances will in all probability result only in injury to the steed, while the game will easily escape.

The early morning, when the herds are feeding, is of course the best time to hunt the Antelope, and the sportsman who starts before sunrise will get more shots during the first two hours hunting than during all the rest of the day.

The officers of posts in the Antelope country, often hunt them with greyhounds, and a most noble and exhilarating sport this is. To cope successfully in speed with these animals, however, dogs of unusual fleetness are required. Besides this the Antelope do not regard cactus at all, while a dog, in running through a thick bed of these pestiferous plants, may often be absolutely crippled. The dogs are brought within view, as near the quarry as possible, the hunters are to follow on their horses as best they may. The hounds having been slipped the chase begins. The startled herd stand gazing for an instant as if to determine the character of the approaching whirlwind, and then wheeling seem to float from view beyond the bluff. The dogs, fresh and eager, soon narrow the intervening space, but the Antelope, finding themselves so hotly pursued, redouble their exertions. In their headlong flight their hoofs scarce touch the ground. The hunters find difficulty in keeping the chase in view, but by dint of whip and spur, those best mounted are able to follow. The aspect of the "field" is continually changing. Stragglers are left behind, and winded dogs withdraw, till at the end of fifteen minutes the game has outstripped men and dogs, or the exhausted quarry is dragged to the ground, and is soon dispatched by the panting, but exultant rider, who is first in at the death.

During the Yellowstone expedition of 1873, General Stanley's dog Gibbon is said to have captured unaided, no less than twenty-four unwounded antelopes. There is probably no other dog in the country that can approach this record.

Where Antelope are numerous, but the prairie is too level to afford the requisite cover for the stalker, the animals may some-

times be brought within shooting distance by playing upon their curiosity. The hunter approaches his game as closely as possible without alarming it, and then lying flat on the ground elevates a flag, handkerchief, arm or leg. This soon attracts the attention of the animals which proceed toward him, not directly but in circles, and generally with many pauses and halts. Sometimes they will turn and run off as if quite satisfied, but before they have gone far, will circle round and advance again, approaching a little nearer than before. This continues for some time, and with care, the game may be brought within three or four hundred yards, but rarely nearer. The task requires more patience than most hunters possess, and is only to be recommended to a man who is very hungry, or very tired of "sow belly" and anxious for fresh meat. The Antelope ruts about the 1st of November, and drops its young, in couplets, about the middle of May.

MOOSE.

Alce Americana.—Jardine.

UNTIL within the last half century the Moose was almost universally distributed throughout the swamps and forests of North America north of the forty-third parallel of latitude. In many localities throughout the British Possessions it is still abundant, but in the eastern United States it has almost disappeared. It has been almost wholly confined within the last quarter of a century, in its southern range on the Atlantic coast, to the State of Maine, where there are still a very few living in the northwestern portions of that State in the vicinity of the upper waters of the St. John River, and far into the almost inaccessible parts northward of Moose Lake and adjacent to New Brunswick. The time is not far distant when this noble animal will not inhabit our country. The process of extermination is being carried forward with great rapidity. The Moose is also found in the West among the Rocky Mountains as far south as the northern boundary of Wyoming, and in the Sierra Nevadas and Coast Range throughout Idaho, Oregon, Washington Territory and Northern California. In the more thickly settled portions of Canada their range is somewhat limited, but in the Province of Quebec they are still met with about the Coulonge and Black Rivers, and eastward of Quebec down as far as the Saguenay. They are also more or less abundant in New Brunswick and Nova Scotia.

The Moose is the largest member of the deer family; a mature male standing higher than the average horse, measuring from seventeen to eighteen hands, and often weighing over a thousand pounds. The males are considerably larger than the females. Their color is quite variable, depending upon season and climate, some being of an ashy grey, others of a darker grey, and a few in the autumn a glossy black. The extremities of their hairs are usually brown or black, and toward the centre and roots, dingy white.

In the wilds of Nova Scotia, Moose have been seen with sparkling grizzly coats in September. The young are of a quakerish brown color, which grows darker with age. The hair is exceedingly coarse and strong, and somewhat brittle. That it breaks when bent is not true, since the squaws color and use it in their ornamental work. With the advance of winter the coats assume a darker hue, and the hairs grow longer and thicker. The necks of the males are surmounted with a mane of stiff hairs, varying in length from five to ten inches, which, when the animals are enraged, bristle up like the mane of a lion. Two fleshy appendages—dewlaps of loose skins—hang from the throat, and are covered with long black hairs. The tail is very short, so short that Thoreau, in an examination of a moose in the Maine woods, overlooked it altogether. The most striking peculiarities of these animals are enormous length of legs, head, and ears, short and thick body, small eyes, immense nostrils, and an elongated, thick, ponderous, and flexible upper lip. And this lip is so peculiarly and curiously constructed as to warrant a full and particular description of its formation and use. Some writer has described it as of a "size between the lip of the horse and that of a tapir." It is square in shape and furrowed in the middle, appearing divided. The varied and rapid movements of this heavy protruding muscular development are due to four pairs of strong muscles arising from the maxillaries. The hind hoofs of the moose are perfectly formed, and so well proportioned as to make a beautiful foot; long, slender, convex, and tapering. The horny points or spurs, and not the hoofs, make the clattering sound when the animal is in motion. The fore feet are flatter, somewhat shorter, and less tapering than the hind feet. The average length of the hoof in the mature animal is about seven inches by four in greatest breadth, but they are sometimes much larger.

The peculiar lip, long legs, and short neck have direct reference to the mode of life of these animals. They live only in forests, and subsist alone by browsing, since in the wild state they never graze. Their long fore legs enable them to reach far up into birch and maple trees to secure the tender and nutritious branches, and to feed on the side of deep acclivities where the moosewood and the willow trees grow in great abundance. By these giraffe-like legs

they are also enabled to obtain foliage out of reach by riding down young trees. And the lip is used as a hand in seizing, tearing off, and gathering the twigs and leaves of trees and carrying them to the mouth.

The horns of the full grown Moose are most striking and impressive, both from their size and peculiarities, and merit somewhat detailed description. The young bull moose grows two knobs, of from one to two inches long, the first season. These are not cast in the fall of the first or second year. When a year old these knobs are developed into spike horns, varying from five to eight inches in length, and remain on the head until the following April or May, when they drop off, and are replaced by long cylindrical or forked horns; in the fourth year they begin to branch forward and become palmated; in the fifth and sixth years they grow in a triangular form, the palmated portions ending in from five to eight points or fingers, the whole resembling an expanded hand. The moose produces the most perfectly developed antlers after the fifth year, the horns of a mature animal often measuring from the root to the extremity, following the curve, four and five feet, as much across from tip to tip, and the palm on the widest surface sixteen inches. They cast their horns annually, after the second year, during the months of December and January, and so prodigious is the growth that by the following August they are furnished with a new and complete set. During the summer months these, as is the case with all deer, are covered with what hunters call velvet. During the velvet state the horns are so tender as to bleed freely when cut, and may like vegetables be sliced with a knife. They begin to harden in the month of August, and animals are sometimes seen in the latter part of that month with peeled and ripe horns. Usually, however, it is in the month of September that this velvet peels off and leaves the antlers hard. In August the velvet splits into narrow pieces, and oftentimes the antlers are seen draped with ribbons. Only the males have horns, yet we have been told of three cows killed bearing small antlers. This is not improbable, since female deer (*C. Virginianus*) have been known to bear horns.

These antlers sometimes attain a weight of sixty pounds. The period of gestation with the moose is about nine months. They bring forth about the middle of May one calf the first and second

years, and afterwards two at a birth. Very old cows become barren. With the mother the summer is a season of retirement. She goes alone to the wildest unfrequented, moss-covered swamps of the forest, and never leaves them until the month of September, when she comes forth to select a companion. No doubt but that she withdraws to these deep recesses near lakes to protect her young from carnivorous animals, and the bull moose. The calves continue to follow the mother long after she ceases to feed them. It is probable that in many cases they keep with her until they are two or three years old.

The Moose is much annoyed during the warm weather by the attacks of flies and mosquitoes, and at this season they remain in the vicinity of lakes, feeding on aquatic plants, standing much of the time in water, where they will remain for hours immersed with nothing but their noses above the surface. Here they feed upon the roots, stalks, and leaves of the yellow lily. Their habit of reaching under water, so as to feed on the roots of these plants, gave rise to the Indian belief that the moose possessed the power of remaining under water the whole day. That they entirely disappear from view when thus feeding is well established, but that they can live under water for any length of time is only credited by Indians. They are strong and rapid swimmers, and have been known to cross a distance of two miles from one shore to another.

The Moose on the 1st of September, the beginning of the rutting season, commence to "travel up," as the Indians term it, and in a few days work out of the bogs and marshes and appear on the higher lands of the forest. During this period--September and October—the bull moose drinks and feeds but little for days at a time. He stalks the forest a proud, haughty, defiant monarch, conscious of his strength and beauty, with horns stripped of the last ribbon of deciduous skin, and polished by constant rubbing against the hacmatack, and with immense round powerful neck, and in the finest bodily vigor and condition. He goes forth to assert his demands among his rivals. He is no longer timorous and shy, but bold, defiant, and dangerous. His weapons are his horns and hoofs, and few animals can use the latter to better advantage. At this time he loses in a measure his fear of man and if only

wounded will not hesitate to attack the hunter with the utmost fury.

In this season no animal could present a nobler appearance. View him as he stands with glossy coat glistening in the early sun, with wide-spread antlers upward stretched like the hands of some fable god, and say if you can, that there is nothing in him to admire. He at times during this period becomes furious with rage, tearing wildly through the thickets, pawing the earth with his feet, and making dead branches crack like pistol shots. This is when, as the Indians say, he is "real mad." This is in reality the bellowing season. The bull roars, and utters his peculiar, short, guttural sounds, and the cow pours forth a wild, prolonged call. The latter goes forth of a still October night, with the going down of the sun, to some high barren ridge, surrounded with deep and heavy forests, and there she bellows forth the wildest of strains until answered by the bull. We believe the call may be heard on a still night three miles or more. During this season the bulls fight many desperate battles. In these conflicts one or both are sometimes killed.

With the close of the rutting season (November 1st) the bull Moose appears like another animal. He no longer trails through the forest bidding defiance to his foes, but mopes along with downcast head and dragging limbs, paying little or no attention to passing events. His coat is now rough and dingy, and his antlers seem to serve no purpose save as a heavy weight to keep his head bowed down. He is cadaverous, gaunt, and exceedingly stupid. Recovering not from his fall campaign, he remains poor until the next spring when he again rallies. About the 1st of November Moose begin to look about for winter quarters. These are usually selected with reference to the abundance of white birch, maples (white, striped, swamp,) poplar, witch hazel, mountain ash, and the different species of firs.

While Moose are not gregarious, several are often found feeding together in what are called moose yards. These yards are simply their feeding grounds, and are made by the animals' constant browsing about the pasture grounds, and are not the result of plan or thought. During the time of the falling of snow they go around browsing, following each other unconsciously making

paths. Of course, this process is kept up every day, so that when the snow becomes very deep they have well-beaten roads running in every direction over quite a large territory. They have a very delicate way of eating, nibbling only a little at a time. It sometimes happens ere the snow lies very deep on the ground that they change and form new yards. They never venture far, however, after the first snow falls, in search of new browsing pastures, and the change is never made unless there be a necessity for it in the scarcity of food and imperfect shelter. The Moose cannot be strictly called a migratory animal, since it never leaves its native ground and forests for strange lands and woods. True, they are obliged to visit and live in the different neighborhoods of their own wilds in order that they may obtain sufficient food, but this can hardly be called migration. The Moose is easily tamed, and can be broken to the harness without much difficulty. There was one some years ago, owned by an old man in Nova Scotia, which he drove to town and drew wood with. The author of "Camp Life" tells us of riding several miles in Maine after one of these animals. From Pennant we learn that they were formerly used in Sweden to draw sledges, but the escape of criminals being often facilitated by their speed, their use for this purpose was prohibited under heavy penalties.

The Moose is hunted in a variety of ways, but whatever be the method employed, great care and skill must be exercised to capture it. Calling, stalking, hounding and running down on snow shoes are the most common means by which it is captured. The first of these methods is employed on moonlight nights and only during the rutting season; and consists in luring the bull to the spot where the hunter is concealed by imitating the call of the cow. The Indian guides of New Brunswick and Nova Scotia, if not the only men that can imitate this cry, are at all events by far the most successful callers, and when this description of hunting is to be engaged in the services of one or more of these men are essential requisites to success. The "call" which they use to produce the deceptive sound is a trumpet of birch bark about eighteen inches long—the small end an inch in diameter and the large end about four or five. With this simple instrument, long practice enables a good hunter to imitate the lowing of the cow moose so perfectly

that the finest ear can scarcely distinguish between the real and simulated sound.

The sportsman being concealed in the bushes, the caller ascends to a tree near at hand, and proceeds to sound the note of the cow which is promptly responded to by any bulls in the vicinity. The oldest and strongest of these at once advance to secure the favors of the supposed female, and to do battle with any rival that may be on the ground. Sometimes when two old males are hastening to the spot whence the call proceeds, they meet, and a furious combat ensues. If however there is only one male near at hand, by delicate manipulation of the call, the animal is sometimes drawn to within a few yards of the hunter, who is usually enabled to shoot it dead at the first fire.

Of stalking it is unnecessary to speak at length, since the same directions for this mode of hunting apply to the Moose as to other animals, with some minor modifications, depending on the nature of the country.

Hounding is practiced during the winter when the snow covers the ground. Having found the game or very fresh "sign" the dogs are slipped, and the Moose is soon brought to bay, especially if the snow is deep and crusted. Its attention is then so occupied that the hunter has little difficulty in approaching, and giving the fatal wound.

These animals are also run down during the deep snows of winter by hunters on snow-shoes. This requires great power and endurance, but very little sportsmanlike skill. Although the legs of the Moose are long, and it can travel with considerable ease through drifts of moderate depth, it is easily overtaken when a crust, hard yet not sufficiently strong to support it, covers the surface of the snow. The poor animal breaks through at every step, its legs are cut and bleeding, and its enormous powers are before long exhausted. The hunter coming up, can butcher it at his leisure. By this means in severe winters many of these noble beasts are slaughtered for their hides alone.

The gradual destruction of the Moose is a matter of history. Space and time are both too valuable for the discussion of such an unprofitable subject. The being with the skin and clothes of a white man, who in one winter butchered seventy-five of them for

their hides alone, leaving their meat to pollute the air, still flourishes on the upper waters of the Passadumkeag in Maine. His memory deserves to be execrated more than him who burned the celebrated temple of antiquity, for destroyed temples can be rebuilt, but exterminated species cannot be recreated.

BARREN GROUND CARIBOU.

Rangifer grœnlandicus.—Baird.

OF the Barren Ground Caribou but little is known beyond what is contained in the very interesting account given of this animal by Sir John Richardson in his Fauna Boreali Americana (London, 1829, Mammalia, p. 241). Although the two American species of the genus have been separated by high authorities, the distinctions between them are not well defined, and would seem to be of doubtful specific value. The chief differences mentioned by the various writers who have discussed this matter, are, the smaller size of the northern form, *R. grœnlandicus*, and its proportionately larger horns. The following note by Mr. R. Morrow, published in 1876, is of interest as bearing somewhat on the question of their identity:—

"Our Caribou (woodland var.) has a peculiar liver, rather small, ovate, long diameter nine inches, short diameter six inches, (from an animal supposed to be about eighteen months old,) situated on the right side, long diameter nearly parallel with the back bone, divided almost in the centre by a shallow sulcus, and having a protuberance, or small, somewhat conical lobe, which the butcher calls a button, upon the upper part of the concave side, with a broad base, and another very small one like a flat teat, not invariably present however, in the same line as the large one, one and a half inches below it, in size about half an inch long, three-eighths of an inch wide, and about one-eighth of an inch thick; and it has no gall bladder. It is more than probable that this form of liver and absence of the gall bladder is common to the deer tribe: Goldsmith says 'all the deer tribe want the gall bladder.'

"I have never seen a Barren Ground Caribou, nor any description of the animal giving the peculiarity in the form of the liver of

this species, so called; but the structure of the Barren Ground and woodland varieties of Caribou is most likely the same, and the difference in size and horns is probably due to climate and food, while the migrations in contrary directions of the two 'varieties in the barren grounds' and 'woodland districts' of Sir John Richardson, may be accounted for by the fact that each is taking its nearest course to the sea coast.

"Dr. Gilpin, in a paper read February 11, 1871, says, speaking of the varieties, 'Reindeer, Caribou, and Woodland Caribou, are their local names. In addition to this the extreme north possesses a deer smaller than any of those, with much larger horns, and with no gall bladder; otherwise the same. Sir John Richardson calls them a permanent variety, naming them Barren Ground Caribou. The absence of the gall bladder seems a very great divergence; yet can any one tell me has our Caribou one?' With regard to the gall bladder I know that Dr. Gilpin has been for some time aware that our Caribou does not possess one, but he has not mentioned the peculiar form of the liver, nor do I think that it has been previously noticed."

The Barren Ground Caribou inhabits Arctic America, and in its migrations it is said never to proceed farther south than Fort Churchill, which is situated near the fifty-ninth parallel of latitude. It is, when compared with the Woodland variety, quite a small animal, a buck in fair condition weighing when dressed only about one hundred pounds. Nor is it as shy and difficult of approach as the preceding species, no doubt because it is not so much hunted.

At the approach of winter, this species, which has passed the summer on the shores and islands of the Arctic Sea, retires southward to the wooded districts, where it feeds on the mosses and lichens which hang from the trees, and on the long grass of the swamps. In May the females commence their advance northward and are followed by the males about a month later. Except during the rutting season, the males and females do not associate together, but live in separate herds. The females give birth to their young on reaching the coast, and by the time the return journey is commenced, which is in September, the fawns are well grown and strong.

The Barren Ground Caribou is said to constitute almost the

entire means of subsistence of the Indians who inhabit the desolate regions of the far North, and they would be utterly unable to exist were it not for the immense herds of these deer. This animal furnishes them with food, clothing, tents, fish-spears, hooks, nets, and indeed with all the implements which they use or require. The Esquimaux shoot them, and also take them in traps constructed of ice or snow, and the Indians capture them in pounds, and kill them in large numbers while swimming the rivers.

It is remarkable that the horns of the caribou vary more than those of any other species of deer, in fact no two adult stags have horns precisely alike. Some very remarkable antlers have been brought to our notice at various times; one pair so lofty that when reversed on the shoulders of a man five feet ten inches in height, the horns touch the ground. Another pair has thirty-two points, including those on the brow, one of which is palmated, while the other is a mere snag. These horns, with just sufficient skull left to hold them together, weigh thirty-two pounds. Others are perfectly straight, and have the brow-antlers of similar form. The horns of the female are probably never palmated, but are slender and straight.

A careful investigation into the anatomy of this species will, it is hoped, before long be made. In this way only can its relations to the Woodland variety be ascertained, and the affinities of the North American Caribou with the Reindeer of Europe be determined.

WOODLAND CARIBOU.

Rangifer caribou.—Aud. and Bach.

THE Woodland Caribou is a near relative of the reindeer of Northern Europe, and since this genus alone of all the deer tribe has been domesticated, we may regard it as the most useful, if not the most comely of its race. The clear, dark eye of the Caribou has a beautiful expression, but the animal has neither the grand proportions of the wapiti, nor the grace of the roe buck, and its thick, square formed body is far from being a model of elegance. The front hoofs are capable of great lateral expansion, and curve upwards, while the secondary ones behind, which are but slightly developed in other members of the family, are considerably prolonged, a structure which, by giving the animal a broader base to stand upon, prevents its sinking too deeply into the snow or morass.

The short legs and broad feet of the Caribou likewise enable him to swim with great ease, a power of no small importance in a country abounding in lakes and rapid rivers, and where scarcity of food renders frequent migrations necessary. When the Caribou moves a remarkable clattering sound may be heard some distance. This is produced by the long hoofs which separate as they press the ground and close when raised.

A long mane of dirty white hangs from the neck of this deer. In summer the body is brown above and white beneath. In winter, long haired and yellowish white. Its antlers are widely different from those of the stag or wapiti, having broad, palmated summits, and branching backward to the length of three or four feet; their weight is considerable, twenty or twenty-five pounds, and it is remarkable that both sexes have horns, while in all other genera of the deer tribe the males alone are in possession of this ornament or weapon.

The female brings forth in May or June a single calf, rarely two. This is small and weak, but after a few days follows its mother,

who suckles her young but a short time, as it is soon able to seek its food.

The only food of the Caribou during the winter, is said to be the moss known as *Lichen rangiferina*, and his instinct and acuteness of olfactories in discovering it is surprising. No matter how deep this lichen is buried, the animal is aware of its presence the moment he comes to the spot. Having first ascertained by thrusting his muzzle into the snow whether the moss lies below or not, he begins making a hole with his fore feet, and continues working until at length he uncovers the lichen. When the snow is too deep, as sometimes happens, he betakes himself to the forests and feeds upon another lichen which hangs on pine trees. In summer their food is of a different nature. They then feed upon green herbs or the leaves of trees. Judging from appearances of *Lichen rangiferina* in the hot months, when it is dry and brittle, one might easily wonder that so large a quadruped as the Caribou should make it his favorite food and fatten upon it; but toward the month of September it becomes soft, tender and damp, with a taste like wheat bean. In this state its luxuriant and flowery ramifications somewhat resemble the leaves of endive, and are as white as snow.

Wherever the Caribou abound they are eagerly hunted, for their flesh, when in season, is most delicious. Then, too, in districts where they have been much persecuted, they become very shy and watchful, so that it requires no little skill to capture them. But besides the attacks of its human enemies, the Caribou is subject to the persecutions of two species of gad fly. The one deposits its glutinous eggs upon the animal's back. The larvæ, on creeping out, immediately bore into the skin, where they cause swellings or boils an inch or more in diameter, with an opening at the top of each, through which the larvæ may be seen embedded in the purulent fluid. Aware of the danger, the Caribou runs wild and furious as soon as he hears the buzzing of this fly, and seeks refuge in the nearest water.

The other species of fly lays its eggs in the nostrils of the deer, and the larvæ boring into the fauces and beneath the tongue of the poor animal, are a great source of annoyance.

In Newfoundland the Caribou are still quite abundant, though

the vast number of deer paths which, like a net work, seam the surface of the interior in all directions, show that the number of deer was formerly enormous. Their great enemies are the wolves, which are continually chasing them from place to place, especially during the winter months, when the deer leave the mountains and come to the plains below to feed on the "browse" of the birch. A few settlers who are in the habit of deer stalking, go into the hills in pursuit of deer about the middle of September, which is just prior to the rutting season, and consequently at a time when the stags are in their best condition.

The migrations of the Newfoundland reindeer are as regular as the seasons, between the southeastern and northwestern portions of the island. The winter months are passed in the south, where "browse" is plentiful, and the snow on the lower grounds is not so deep as to prevent them from reaching the lichens. In March, when the sun becomes more powerful, so that the snow is softened by its rays, permitting them to scrape it off and reach the herbage beneath, the reindeer turn their faces toward the northwest, and begin their spring migration. The whole surface of the country is now alive with the deer, as herd follows herd in rapid succession, each led by a noble stag as tall as a horse, and all bending their course, in parallel lines, toward the hills of the west and northwest. Here they arrive from the middle to the end of April, and amid the rocky barrens and mountains, where their favorite moss abounds, they remain until October. Here they bring forth their young, and here they are in a measure free from the persecutions of the terrible flies above referred to.

So soon, however, as the frosts of October begin to nip the vegetation they turn toward the south and east, and repeat their long march in the same manner, and pursuing the same paths as when on their northern migration. Thus for countless centuries, it may be, have these innumerable herds been moving along the same route, unless when interrupted by the Indians or the irregularities of the seasons. Their movements are generally in parallel lines, unless where the narrow necks of land, separating lakes, or the running waters or straits uniting them, or intervening chains of hills, cause them to concentrate on one point. It was at such points that the Boeothics, or indigenous Red Indians, were

accustomed to wait for the deer, and slaughter them in great numbers. Not content with this, however, they erected deer fences, the remains of which can still be traced for many miles. Inland from Notre Dame Bay and far to the northwest of Red Indian Lake, a double line of strong fence was put up by the Indians, which at its commencement diverged many miles. The southern fence ran down to the lake, so that deer should thus come near their own encampment; and the northern line was to prevent their escape near the shore. The northern fence ran down to the river Exploits, along the bank of which another fence was raised, with openings at particular places for the deer to go to the river and swim across. These openings were called "passes." A number of men now go within the fence, and from the wider enclosure they drive them to the narrow part, or to passes of the river where others were stationed, and thus killed the deer at their leisure. These deer fences are actually seen to extend thirty miles on the river Exploits, and how far into the interior no white man can tell. They are formed by felling trees, and must have cost immense labor. The tribe which constructed them originally must have been numerous and powerful, though now without a single living representative.

The Indians, especially the Mic-Macs, have another method of capturing the deer, which if it were not well attested, would seem almost incredible. Some of these Indian hunters will actually run down a stag. Only when fat is the stag worth such an arduous pursuit, and then only is he liable to such fatigued exhaustion. The hunter will commence the chase early in the day, and follow it up without intermission, and before night will make the stag his prey without firing a shot. The stag at first easily outstrips his pursuer, but after a run of four or five miles he stops, and is by and by overtaken. He lies down fatigued but is again surprised; and thus the chase is kept up until the poor stag plunges into a pool or morass to escape, where he soon meets his doom, man at length winning the day.

How useful the tamed reindeer might become to the Newfoundlander, may be imagined from what we read of the Lapland reindeer. It can draw a sledge over the frozen snow at the rate of twenty miles an hour. To the Laplander the reindeer is every-

thing; and in his cold and barren country, covered with snow and ice nine months of the year, and producing few vegetables, he would perish were it not for the milk and flesh of the animal.

The country of the Woodland Caribou includes Newfoundland, Nova Scotia, New Brunswick, Labrador and Canada, and is said to extend westward through a narrow strip of well wooded territory about one hundred miles wide from Lake Superior to Lake Athabasca. To the northward it is replaced by the Barren Ground Caribou.

The only method of taking the Woodland Caribou is by stalking. If there be snow on the ground, the hunters follow the tracks of the animals, and by great care are often enabled to come within shot of them. When there is no snow and the deer cannot be tracked, a tall tree is climbed and the neighboring country is swept with a glass until a drove of Caribou are seen feeding in one of the open treeless spots called "Caribou Barrens." The bearings of their position are taken, and the hunters proceed to stalk them. Guides, men familiar with the haunts and habits of these animals, are essential to the successful pursuit of the Caribou in regions where it is much hunted. The Indians and half breeds are highly recommended for this work, though no doubt whites of experience are quite as serviceable.

ELK, WAPITI.

Cervus Canadensis.—Erxleben.

"THE antlered monarch of the waste." How applicable is this term to the stately elk, the giant deer of the forest, the plains and the mountains of North America. Standing as tall as a horse, bearing a superb pair of antlers worthy to adorn any baronial hall, with senses than which no keener can be found among all our varied examples of animal life, and a form faultless in the grace and symmetry of its outlines, the Wapiti justly holds the first place among the game animals of our continent.

It is in the sportsman's breast that the Elk arouses the greatest enthusiasm, yet his grace and beauty might well attract the pencil of the artist, and his great size and wonderful powers of endurance furnish an exhaustless theme for the pen of poet and romancer. No more striking and beautiful sight can be imagined than a band of these animals just started from their feeding ground. Their swift and swinging trot, as they move off over the rough ground or through the tangled forest, is the poetry of motion. Each grand bull carries his head well up and his polished antlers stretch far back over his flanks. The more dainty and light-footed cows press to the front and with their calves first disappear, and in a moment more the last of the bulls vanishes over the top of the neighboring bluff. Then perhaps, oh reader, you advance from your place of concealment, and with feelings of indescribable pride and exultation stand over your first bull elk.

In former times the Wapiti seems to have been distributed throughout the whole of North America, south of the Great Lakes on the eastern side of the continent, but extending northward as far as the fifty-sixth or fifty-seventh parallel of latitude on the plains and in the mountains. It was abundant in California, and nowhere more so than on the banks of the San Joaquin, about which stream all old Californians are so enthusiastic. In Northern

California it still exists, though not in such numbers as formerly. East of the Missouri River there are one or two localities where the Elk still linger, though in sadly diminished numbers. One of these is in Michigan, in a tract of almost impenetrable forest land. A few have been reported to inhabit the wildest and most unsettled portions of the Alleghany Mountains in Pennsylvania, but this is merely a tradition and it is doubtful whether any exist there at present. The species is now almost entirely confined to the high plains of the Missouri region, and the mountains which stretch away to the westward toward the Pacific Ocean. Here the Elk in many localities is still to be found, but the onward march of the settlements, and continual ravages of the skin hunter, or as he is contemptuously styled by the better class of frontiersmen, the "Elk Skinner," are driving them farther and farther back, and are constantly reducing their numbers.

As has been remarked the Elk stands about as tall as a horse, but its proportions are those of a deer. Its horns are long and branching, and are generally very symmetrical. They usually attain a length of five or six feet and often weigh sixty or seventy pounds. In color the Elk is, during the summer months, light reddish chestnut. At the approach of autumn the coat becomes darker and the length of the hairs increases until in winter, the longer hairs becoming tipped with pale brown, a greyish cast is imparted to the whole *pelage*. A triangular patch of pale yellow is seen on the rump and includes the tail, which is very short. The bull elk, except in summer, has a growth of long hair on the neck and breast which the cow does not possess at any season. The latter differs from the male in being somewhat smaller, and in lacking horns.

Elk rut early in September and it is only at this season that the peculiar "whistling" of the bulls is to be heard. The rut lasts but a short time, and at the end of the season the bulls are much run down and are very thin. They soon recuperate however and by the last of November are quite fat and in good order. The females bring forth their young late in May or early in June, and some time before this important event takes place, withdraw from the herd and remain in the thickest brush preparing for the duties of maternity. At this time too, the bulls are having trouble with

their horns. These huge weapons are grown in about four months, and it will readily be conceived that the drain upon the animal's strength is thus enormous. The bulls late in July are more thin and weak than the cows, which have for two months been suckling their calves. In a mountain country the males are now to be found on the highest ridges, feeding above timber line and passing most of their time in the densest thickets where they are in a measure protected from the flies. On the plains, they spend most of their time lying in the thick willow brush which lines the borders of the streams.

The cow Elk produces usually only one calf, and no instance of the birth of twins has ever come under our observation. The calf is a beautiful little creature, spotted like a red deer's fawn, which it much resembles in general appearance. As already remarked, the "whistling" of the Elk is heard only for a few days during the early part of September. It is made up of several parts, and is so peculiar a cry that it can hardly be described, much less imitated. The first part consists of a prolonged, shrill whistle, which seems to come to the hearer from a long distance, even though the animal uttering it be quite near at hand. This is followed by a succession of short grunting brays or barks, three or four in number, and the call is completed by a low, smooth bellow. Sometimes the whistle is sounded without the succeeding parts. Withal, the cry is an odd one, and once heard will always afterward be recognized.

The whistle is very musical, and no more delightful sound can come to the sportsman's ear, as in the grey dawn of the morning he ascends a mountain side to obtain a good view of the undulating slopes and park like openings, which stretch away toward the valley beyond. Watch carefully brother, keep yourself well concealed, and be sure that the wind is right. Then when you spy the herd, slip cautiously down yon little ravine, and you will ere long be within easy reach of as fine a bull as hunter ever bagged.

The Elk and Mule Deer differ widely in many of their habits from the Virginia Deer, and in nothing more than their intense fear of man, and their hatred of the "march of civilization," so-called. While the White-tail, if shot at or pursued with hounds, will only run far enough to escape the immediate danger, and

will in a short time return to his accustomed haunts, the Elk and Mule Deer will almost immediately desert a country where they have been much shot at, and the sound of a gun, even though at a great distance, will alarm all the bands within hearing. For this reason, hunters, in the mountains where the report of a gun is taken up, and a thousand times repeated by the echoes, use a rifle which carries but a small charge of powder, as the Smith and Wesson rifle or the Winchester; stating that the needle gun with its 70 grains of powder makes too much noise, frightening, or at least rendering suspicious all the game in the neighborhood. Old hunters have a saying, that a band of Elk when fairly started, will not stop until they have crossed flowing water; and a plainsman of experience and reliability, in whose company we have often hunted, said to us once, as a noble band of Elk disappeared over the bluffs, on the north bank of the Loup Fork; "those fellows won't stop until they have crossed the Running Water." This stream, perhaps better known in the "States" as the Niobrara, was forty miles distant, yet we doubt not that the Elk were able to keep up their swift trot until they reached that stream.

The usual gait of the Elk, when much alarmed, is the long swinging trot before referred to, which is a far more rapid gait than would be imagined by one who has had no experience of the rate at which these animals move. A very good horse will have great difficulty in keeping up with a trotting Elk unless the country is exceptionally favorable. The Elk, however, cares nothing for the character of the ground which it traverses, or rather seems to prefer that which is worst for a horse. It apparently moves quite as fast through the most rugged Bad Lands, or along the side of a mountain, rough with huge rocks and down timber, as over the smoothly undulating prairies of the open country. Moreover this trot does not seem to tire it at all, and it can keep up the gait for an indefinite length of time. Its run, and it only runs when very badly frightened, is an awkward clumsy gallop, utterly devoid of grace, but somewhat swifter than its trot. Running however is very exhausting to the animal, and an essential to success in pursuing the Elk on horseback is to get him to break his trot. If that can be done and the country favors the horse, the hunter may succeed in getting along side. The writer remembers on one occa-

sion to have followed on an unusually fast pony, a cow Elk whose hind leg he had broken, for two miles before getting near enough to shoot from the saddle and kill her. In this case every thing favored the horse and he was put through at railroad speed. The Elk was quite thin, and really seemed to run just about as fast after receiving the wound as she did before.

The most successful method of capturing this royal game is by stalking, though to succeed in approaching a band of Elk requires no little care and skill, and is a good test of the sportsman's capabilities as a still hunter. On the Loup Fork and its branches, in years gone by, the writer has enjoyed glorious sport with this game, and it is no doubt still abundant in the section beyond the settlements.

The Loup is a miniature Platte (of which it is a tributary), in very many respects, and drains with its branches much of northwestern Nebraska. The upper Middle Loup, where much of our hunting has been done, has the same broad channel and innumerable sand-bars. Its low banks and many islands are densely covered with a thick, tall growth of coarse grass, weeds, and willow brush. The country lying adjacent to this river, and its main branch, the Dismal, is, to say the least, very hilly, being composed of ranges of bluffs lying parallel to the river, and succeeding each other at intervals of one or more miles as far as the eye can reach. The intervening valleys are made up of sharp ridges and steep-sided knolls, usually but a few yards apart. Deep cañons from the river, wind out into the various ranges, furnishing timber of several kinds, including cedar, elm, ash, box-elder, and many brush thickets. The first grows in thick dark clumps along the steep sides, and is intermixed with the latter varieties along the level floor-like bottoms of the cañons. Such grasses as are indigenous to the soil, among which is the famous buffalo or gramme grass grow sparsely on the up-lands. The lowlands furnish a rank growth of "blue-stem," or "blue-joint," everywhere common in the West. This country has long been a favorite feeding ground of the Elk, and here for centuries it has been hunted by the Sioux and Pawnees.

The outfit necessary for pleasant and successful hunting in this country, should be, in addition to the usual covered wagon and

camping utensils, an extra, steady-going saddle horse, accustomed to the picket-rope, and not easily frightened by the use of fire-arms. The clothing should be of heavy woolen material, and of a pale yellowish-brown. The rifle used should be breech-loading, of small bore, heavy charge and light express, or an explosive ball. Such a rifle is found to have the main elements which make up a good hunting gun. It gives a flat trajectory up to three hundred yards, outside hunting range, and is deadly enough for the largest elk. A powerful field glass will be found a most useful accessory.

Sportsmen who intend to bring back with them the heads of Elk which they may kill, will do well to provide themselves with some preservative to be applied to the skin, especially about the nose, lips and eyes. Dry arsenic is as good as anything, and is besides inexpensive, and easily carried and applied.

Few sportsmen, we imagine, realize that the days of the Elk as well as of the buffalo are numbered, and that this beautiful and magnificent game will soon live only in the annals of the past. This state of things we owe to the presence in the wilder portions of the country of the skin hunter. What is true of the Elk, is also true to a greater or less extent of all our game animals.

Good hunting is at present scarcely to be found east of the Missouri River. West of that stream, however, there is a wide extent of territory, in many parts of which large game of all descriptions may still be found in considerable abundance by those who are sufficiently acquainted with the country to know where to look for it. There remain on the plains and in the mountains seven species of ruminants that are sufficiently abundant to make it well worth while that the different State and Territorial Governments should attempt, before it is too late, to protect their game by severe laws. Buffalo, elk, white-tailed deer, mule deer, antelope, mountain sheep and moose are still to be found in considerable numbers in various portions of the trans-Missouri States and Territories, but owing to a savage and indiscriminating warfare which has been inaugurated against them within the past few years, their numbers are decreasing more rapidly than ever before.

Most of us remember the good service done some years ago by General Hazen, in bringing before the public the facts in regard to the wanton destruction of the buffalo along the line of the

Smoky Hill Road in Kansas and Colorado. The discussion at that time, resulted in the adoption of some measures to protect the buffalo, though it is to be hoped that ere long still more stringent laws may be enacted and enforced. But we have just now to speak of a country distant from the railroads, out of the way of the average tourist, and far from the haunts even of the gentleman sportsman; we refer to the territory lying between the Missouri River and the main divide of the Rocky Mountains, north of the Union Pacific Railroad. It is in this region that the most abundant supplies of wild game are to be found, and it is here that these animals are slaughtered for their hides alone, by the professional hunter.

Buffalo, elk, mule deer and antelope suffer most, and in the order in which they are here mentioned. They are destroyed without regard to season; the hides only are taken and the meat left to feed the wolves, or to rot when the spring opens. We know directly of thirty-four cow Elk killed out of a band of forty, about the middle of April, 1875, by one man. The snows were deep, and the butcher followed the poor animals until all but six were slain. Each of these animals, if allowed to live, would have produced a calf in a little over a month after the time of its slaughter. Here then were sixty-eight elk killed by one man in a day and a half. It is estimated from reliable information, that in the winter of 1874-5, during the deep snows, over three thousand elk were killed for their hides in the valley of the Yellowstone, between the mouth of Trail Creek and the Hot Springs. For the territories of Wyoming and Montana, the destruction must have been twenty times as great. An elk skin is worth from $2.50 to $4, and to secure that pitiful sum this beautiful life is taken, and from three to five hundred pounds of the most delicate meat is left on the ground.

A buffalo hide is worth $1.50 in September, $2 in October, and $2.50 in November, and at those prices many men can be found to do the work of butchery. For, as many of us know by experience, a man without any pretensions to being a skilful hunter can slaughter a dozen or two buffalo in a day wherever they are numerous. Mule deer and antelope are more difficult to kill, but in these days of breech-loading rifles, a fair shot can kill several out

of a band before the rest can get out of reach. It is a melancholy sight to see as we have seen in a morning's march, half a dozen fresh doe antelope carcasses stripped of their skins, with the milk still trickling from their udders; and it is sad to think that in addition two little kids must starve for each of these.

Mountain sheep and moose do not suffer to any considerable extent from these skin hunters. They are too wary to be successfully pursued by these men, many of whom are vagabonds of the most worthless description. There are some good hunters and good fellows among them; men who would gladly relinquish the business could it be wholly stopped, but who think and say that if the game is to be exterminated, they must make the most of it while it lasts. Taken as a whole, however, they are a miserable set, and many of them do not kill more than enough to keep themselves in provisions and ammunition from month to month.

This skin hunting is quite a new thing in the territory, having been initiated, as has been said, only three or four years ago. In 1872 or '73 a firm of Fort Benton traders, who have since achieved an unenviable notoriety by selling arms and ammunition to the hostile Sioux, conceived the idea of fitting out parties to kill game for the hides, and the result was so successful that the trade in wild hides has been increasing ever since.

What now can be done to remedy this state of affairs? Stringent laws should be enacted, and not only enacted but enforced. Game should not be killed except for food, and then only during the autumn. In other words, no more game should be killed than the hunter can use, and indiscriminate hunting at any and all seasons should be prevented. But we know that legislative bodies move slowly, and that knots in red tape are as difficult to untie as that of Gordius of old. In the meantime much, very much, may be done by the officers of the army who are stationed on the frontier. The skin hunters who, of course, violate the laws of all the territories which have game laws, may be warned off, arrested, and so annoyed that they will in future sedulously avoid the vicinity of posts where they have received such treatment. Action to this end at Camp Baker, by Major H. Freeman, Seventh Infantry, has quite driven the skin hunters out of the country. The little exertion entailed by this course will be amply repaid by the increase of large

game in any section of the country where its wanton and unnecessary disturbance is prevented.

As things stand at present, the country where game most abounds is that which is now, or has lately been, infested by hostile Indians. The red fiends know enough to preserve their game from excessive and continual persecution, and it is where the white man dare not go that it is found most abundant and most unsuspicious. The Indians are the only real preservers of game in the West.

Will not every officer and every Western man to whom these lines come think seriously on this matter, and endeavor to do his part to put down terrible butchery?

MULE DEER.

Cariacus macrotis.—Gray.

THE Mule Deer, or as it is commonly called in the West the Black-tailed Deer, is found throughout the Missouri Region and in the Rocky Mountains. The species is quite abundant in many localities, and where it has not been too much hunted furnishes good sport to the still hunter.

In size the Mule Deer considerably exceeds the common deer of the Eastern States, the White-tail of the West, and as an article of food its flesh is far superior to that of the latter species. The color of the Mule Deer at certain seasons somewhat resembles that of the Virginia Deer, but its horns are much larger, and do not bend so far forward. Its tail is widely different, being for the greater part of its length, thin and rat-like, naked below with a covering of short white hair above, and a heavy brush of jet black hairs at the tip. There is a triangular patch of white at the root of the tail on the buttocks, which somewhat resembles the same mark on the Elk and Bighorn.

The true *C. macrotis* is found throughout the Mountains nearly or quite as far west as the main divide of the Sierra Nevadas. In Southern California and Arizona, among the mountains of the Coast Range, it is replaced by a recently described variety called in that section, the Burro Deer, an appellation about equivalent to the name of the Eastern variety, *burro* in Spanish signifying jackass. This variety was described in a recent number of the *American Naturalist* by the Hon. J. D. Caton. It was first met with by this gentleman near Santa Barbara, Cal. While at this place Judge Caton made an excursion into the Coast Range at Gaviota Pass, and secured three bucks. These were evidently a variety of the Mule Deer, and not of the Black-tailed, having all the distinctive peculiarities of the former. The variety differs from the type in being

smaller, of a more decidedly reddish shade, in having a lesser patch of white on the buttocks and, most prominently, in the markings of the tail. The tail of *C. macrotis* is entirely white except a black tuft at the tip; in the variety a black to reddish-black line extends along the upper side of the tail from the root to the tip. The habitat is not as yet well determined, but Judge Caton thinks it safe to say that this variety predominates in the Coast Range south of San Francisco, which seems to be its northern limit. The Sierras seem to define its eastern limit, east of which it is replaced by the true Mule Deer. It ascends to higher altitudes than any other American deer, being frequently found above timber line. Those living in the high mountains are the largest. They are not uncommon, and further information, it is hoped, will soon be obtained of the distribution and peculiarities of this novel variety. A skin and skeleton are said to have been sent to the Smithsonian Institute by Judge Caton.

The Mule Deer is always found in a rough country. The white bluffs of the Bad Lands, the sparsely wooded buttes that rise here and there above the level of the prairies of Dakota and Montana, and the rockiest timbered ridges of the mountains, are its favorite haunts: in fact it may be said to be the deer of the plateaus and mountains, as the Virginia Deer is of the forest and lowlands. Its flesh, as has been remarked, is very palatable, and is superior to that of any of its congeners except the elk. It is somewhat difficult of approach, as it is very vigilant and a rapid runner; hence, one must have a sure eye to kill many during a season. It is said to be more abundant in the Blue Mountains, which traverse Eastern Oregon, Washington Territory and Idaho, than in any other portion of the continent, as it finds there plenty of food and shelter.

The does of the Mule Deer are found throughout the foothills the whole year, but the bucks retire in the spring to the highest mountains, to "grow their horns," where they remain until about the first of October. While on the mountain tops they collect generally in small bands of four or five. They are generally found near timber line, in the heat of the day, but in the morning and evening they leave the shade of the forest and go further up the mountains to the grassy tops, to feed on the young rich growth

which is nourished and fed by the water from the snow banks on the mountain peaks. When thus feeding, it requires the utmost skill of the hunter to approach them within shooting distance. When one deer is killed in a band and is seen to fall by the others, they often run in a body a short distance from the slain buck, and halt, looking back at the point of danger, standing as still as a statue, with their large ears brought forward to catch the slightest sound. If nothing is seen, in a few moments they wheel about and gallop away to the nearest timber, when they are soon lost to view. When shot at in the forest, they retreat at a furious rate, often falling over prostrate tree trunks, and crashing through thickets, making the dead sticks crack and fly in every direction. They sometimes charge directly toward the hunter. The scent of the Mule Deer is very keen, and it is useless to hunt them to "leeward," as they will smell the approaching hunter, and bound away long before he is near enough to sight them. They are remarkably sharp sighted, and are constantly on the lookout for danger, particularly the does when they have their young with them.

When a band is resting, they lie down within a few feet of each other, doubling their fore legs under the body, and in wet weather they dry their coat by licking it with the tongue, in the same manner as a dog. The bucks often return to their "beds," sleeping in the same place several nights in succession. The Mule Deer rut during the latter part of October, and the does bring forth their young, generally two, though sometimes only one, late in May or early in June. The fawns are prettily spotted with white and become quite strong and active a few days after their birth. When a doe first has her fawns, she remains in the thick woods and underbrush for several weeks, until her offspring are able to keep up with her when running from danger.

The Mule Deer found on the plains, that is among the Bad Lands in the vicinity of large streams, are to be looked for just before sunset and after sunrise when they come down to the water's edge to drink. The hunter will find these hours of the day by far the best for the pursuit of this animal.

BLACK TAILED DEER.

Cariacus Columbianus.

THE Black Tailed Deer is a Pacific Coast species which does not, apparently, extend its range much east of the Sierra Nevada Mountains. Its favorite haunts are among the dense forests of redwoods which clothe the sides of these mountains in Oregon and California. Further south it frequents the dense thickets of chapparal and manzanita which cover the hillsides, and through which it is quite impossible for a man to force his way. To these thickets the deer betake themselves when wounded, and in such cases are sure to be lost.

The Black-tail is a somewhat larger animal than the Virginia Deer, but does not equal the Mule Deer in size. Its ears are proportionally less than those of the last named species, it lacks the white patch on its rump, and its tail is quite differently haired and colored, resembling that of the White-tail as to its coat, and being black above and white beneath.

The flesh of this animal is very poor eating, and is not to be compared with that of any other member of its family inhabiting North America. The animal when hunted affords some sport to the stalker, but unless the hunter is a dead shot he will lose a large number of wounded animals, from the habit above mentioned of taking refuge in the densest thickets. This species is also hunted with hounds to some extent in Oregon and Washington, the hunters taking stands by the runways and waiting for the deer to pass, just as is done in hunting the common deer of the East. But little is definitely known of the habits of this species and a careful biography of it is much to be desired. In some localities this deer is called Brush Deer and in others Mountain Deer, both names having reference to the character of the country it prefers.

VIRGINIA DEER.

Cariacus Virginianus.—Gray.

THE Virginia Deer, in one or another of its varieties, is universally distributed throughout the United States and an east and west belt of country including the southern portions of the British Possessions, but probably not extending north of the fifty-fourth parallel of latitude. It is however a lover of the forests and of dense cover, and on the high plains of the Missouri region is confined chiefly to the wooded river bottoms. There are few better deer ranges than the willowy banks and islands of the Platte, the Running Water, the Yellowstone and the Missouri Rivers, and deer started from the neighborhood of these streams take refuge for a time on the wide plains above, but return to their cover as soon as possible. The deer of the Rocky Mountains has been dignified by the varietal name *macrourus*, but it seems to us somewhat doubtful whether it deserves to be separated from its more eastern relative the true *Virginianus*. There is a very wide range of size among the deer of some portions of the Mountains, and it is not unusual for a hunter to kill in the same localities fine bucks fully equalling in size the largest eastern deer, and others apparently just as old which weigh but half as much.

The true Virginia Deer is an inhabitant of the United States as far west as the plains, and occurs in more or less abundance in every State from Maine to Texas. In Florida and in the other Gulf States these animals following well-known laws of geographical variation are much smaller than farther to the northward. West of the plains occurs, as has been said, the variety *macrourus*, said to be somewhat smaller and with a proportionately longer tail, denominated in frontier parlance the White-tailed Deer, to distinguish it from its congeners the Mule Deer and the true Black-tail of the Sierras. In Arizona a still smaller variety is met with which

is described by Drs. Coues and Yarrow in their recent important work on the mammals observed by Lieut. Geo. M. Wheeler's Survey, published in the Reports of the "United States Geographical Surveys West of the One Hundredth Meridian," Vol. V., Zoology. The largest bucks of this variety do not exceed seventy pounds in weight, and the does are of course still smaller, falling under sixty pounds.

On the Pacific Coast, and especially on Whidby Island, are found deer, white or mottled, which have been designated as *Cervus alĕus* or *C. virginianus*, var. *variatus*, but there can be little doubt that these are simply cases of albinism, which is not very uncommon with this animal, and that the supposed species or varieties have no zoölogical standing whatever.

The common deer has, for so widely distributed a species, but few appellations. In the east it is generally called Red or Virginia deer, in the west it is almost universally called the White-tail. This species is so well known as scarcely to need any description. Every one has seen it either alive or dead and many of our readers have felt the proud delight of standing over their first buck. In summer its coat is bright red, but on the approach of autumn the color deepens, becoming more grey until in October the short close hair is nearly of a mouse color, and the animal is then said to be in "the blue." The throat and under surface of the tail are always white. The horns, which are not large but are usually very symmetrical, bend gracefully forward and the points are directed somewhat downward. These weapons are shed in February or March according to the latitude which the wearer inhabits. "The animal at once retires from the herd to hide itself in the thickets and unfrequented places, venturing abroad for pasture only in the night. The horns are yearly shed, to be renewed in ampler development. In his first year—for it is the male alone that is furnished with horns—he has only a kind of corneous excrescence, short, and covered with a thin, hairy skin; in the second year simple straight horns make their appearance. In the third they have two antlers, in the fourth, three; in the fifth, four; in the sixth, five; after which the antlers do not always increase in number, though they do sometimes amount to six or seven on either side; but the stag's age is then estimated rather from the

size and thickness of the branch that sustains them, than from their numbers." The doe is considerably smaller than the buck, and may be said never to have horns. It is true that there are half a dozen instances on record where a female deer has been found to be provided with short horns, but this state of things is quite abnormal.

Deer rut in October and November and the doe brings forth her young, generally two but sometimes three, in May or June, earlier at the South than at the North. These animals should therefore never be shot before October first, or at the earliest September fifteenth. The fawns are not fit to eat before that season, and if the does are killed before that date, the young will have a hard time of it during the autumn.

The food of the Red Deer varies according to the season. In autumn they crop the buds of green shrubs, leaves of small brambles, the tender parts of brakes or ferns, etc.; in winter, when snow covers the ground, they eat the leaves of laurel, and the bark and moss of trees; and in summer they find abundance of vegetation, especially in the rank grass and lily pads that border the margin of ponds and sloughs.

In districts where they have been much hunted, the deer feed mostly at night, and during the day they retire to the hills to rest and bask in the sun. In a level country they resort to thickets near the water to rest during the day. The best time to still hunt deer is just before sunset, when they come down from the hills to drink. They always make straight for the water and quench their thirst, and then commence feeding. Early in the morning you will find them on the sunny side of a mountain or hill. Never hunt below them—that is, at the foot of a hill—for if you do nine deer out of ten will see or smell you, and bound away without your knowing of their presence. Get on the top of a mountain and look below for the deer. Always hunt to windward and move slowly and do not try to cover too much ground, and you will be successful if in a deer country.

The modes employed in capturing these animals are very numerous, but those most practiced are hounding, *i. e.*, running with dogs either by a runway where the hunter stands, or into the water, driving, floating or jacking, and still hunting. Of all these methods

the last is the most difficult, though by far the noblest and most sportsmanlike. Hounding requires that the sportsman should have the assistance of a guide and dogs. The former must be familiar with the runways of the deer, and the hounds must have good noses and considerable endurance. The hunters are stationed at the various runways, and the dogs put on the track of the game. The cry of the packs generally notifies the expectant sportsman of the direction which the deer is taking, and if it is running toward his stand he usually has time to prepare himself for its coming. If the animal passes near him it requires but little skill to bowl it over with his double barrel as it goes by. But there are a great many right and left snap shots, and capital statuettes on a runway who don't know much more of the haunts and habits of their game than they do of crochet work or knitting. They have an intelligent bush-beater who knows the lay of the coveys, a dog with a good nose and well broken, a splendid pair of barrels, and a keen eye and quick trigger. The guide leads up to the hunting ground, then the dog takes the van and attends to business, and when his tail gets stiff and a bird rises, the gun drops him neatly, the attendant marks him down, the dog retrieves, and the gunner puts him exultingly to bag. Precisely the same on a runway. The guide who has previously tracked the deer or knows his habitat, puts out the hound, which runs the deer to water, or to cover by secluded or well known by-paths, and the sure aim of the practiced marksman brings the game to grass. Now, so far as the requirements of this sportsman go, all is well; but his education is anything but complete. He has actually begun at the finishing school instead of the rudiments.

By the other method of hounding practiced chiefly in the Adirondacks, the deer is driven until it takes to the water, and when so far from the shore that it cannot return, the hunters row after it, and having approached within a few feet, one of them blows out its brains. When the deer are thin they sink immediately after being shot, and *it is customary for the guide or one of the hunters, if there be two in the boat, to hold the struggling brute by the tail while the other shoots it*, thus saving the carcass. Comment is unnecessary.

Driving deer is a far different kind of sport. It is chiefly em-

ployed in the South and Southwest, and requires not only a quick hand with the shot gun, but a firm seat in the saddle. The dogs having started the deer, the hunters follow them on horseback, striving by their knowledge of the animal's habits, to gain as much as possible on him by cutting off corners and following short cuts and thus coming within shot of the fleeing animal. The weapon used in this description of hunting, is the double barrel, loaded with buckshot, and in the hands of an experienced hunter it is a deadly weapon up to one hundred yards.

In jacking or floating the shooter sits in the bow of a canoe just behind a lantern which throws a powerful light ahead, but is shaded from the hunter so as not to interfere with his powers of vision; the deer raising their heads, stare at the light as it approaches, and when the boat is near enough the hunter shoots. This method seems to us unfair and unsportsmanlike; it gives the deer no chance for their lives. Besides it sometimes proves an expensive pleasure, for horses and cattle are not unfrequently shot instead of deer. The greatest objection to it, however, is, that as it is only employed during the warm weather, does are killed which have fawns too young to take care of themselves and which must perish soon after the death of the mother. The advocates of this mode of hunting say that in no way can more exciting sport be had than by this same night hunting. Your guide must understand paddling and the habits of the deer thoroughly, or it is useless to hunt, and it requires something more than an ordinary shot to take a correct aim at a couple of shining specks twenty-five or thirty yards off in the darkness. Add to this the fact, that the favorite feeding grounds of deer, particularly in the Adirondacks, are where the lily-pads are thickest, often making it next to impossible to shoot, and to jack a deer becomes as difficult a feat as to stalk one. The sensation of sailing over the dark waters of the lake or river, every nerve strained to catch the faintest sound which may signal the approach of the game, is delightful, and the intense stillness which prevails over everything, broken now and then by the sharp plunge of a muskrat, or the breaking of a twig in the bush, by the step of some wild animal, or perhaps by strange sounds, which even the trained ear of your guide cannot recognize, all combine to make an experience as pleasant as it is novel. All

of which may be very true, but still we do not believe in jacking. In Wisconsin deer are killed by a method somewhat similar to the one last mentioned, and which is to be classed under the same head.

Scaffold shooting is resorted to during the summer and fall months on the Peninsula. The deer go north from Central and Northern Wisconsin in the spring, and are then called "spring poor." Though the game law prohibits it, they commence floating for deer in July, and also shooting from scaffolds. Scaffolds are generally built from ten to thirty feet high, with a place on top for the hunter to sit. The latter generally takes advantage of small trees close together, and nails slats on them to serve as ladders. They are placed along the deer trails, which here run nearly due north and south, unless there should be streams or lakes near, when they diverge to them. For the month of July they place salt licks early in the spring, and shoot from scaffolds when they come to the salt licks. From Escanaba to Negaunn the Chicago and Northwestern Railroad runs northwest and southeast. As these deer trails are, in some places, close together, some are called main trails, and some branches. They generally go back from the railroad track fifty to one hundred rods, as it is nearly all woods along the line, and run a deer fence, consisting of small and medium trees, lapped over in one direction, with the interstices filled with small branches, etc. As this fence is built parallel with the track, it cuts across several deer trails in a diagonal direction, so when deer are travelling south they reach the fence and turn east to find an opening. This takes the travellers over several trails, all down the fence, to the lower or southeast end, where the scaffold is placed. By cutting several small avenues through the brush, the hunter can get a good range on the deer. They travel mostly from daybreak to nine o'clock, few crossing from eleven o'clock to dark, as they then stop to feed. As the road runs in the direction northeast and southwest, the deer cross the track going south earlier on the north end than on the south end. From Little Lake south to Day's River are good hunting points. They commence crossing at Little Lake about August 5th; Helena Switch, about August 8th to 10th; McFarland's Hill (half way between Helena and Centreville,) about 15th to 18th, and so on.

There is good deer hunting along the line between Menomonee and Escanaba, in August and September. Though the law does not allow it, hunting is done in these months. As the deer leave the peninsula so much earlier than they go south in Lower Michigan, it is a manifest injustice to sportsmen to be prevented by the law from shooting them when they are in their best condition, particularly as deer are abundant in this section. There is a good winter hunting spot eight to ten miles north of Day's River, and on Red Division (twelve miles north of Escanaba) on the Smith River. On Bay de Nouquet the deer congregate in a section of heavy timber, and winter there. Splendid hunting may be had here in the months of October, November, and December. Guides may be had here at about two dollars per day. Guides make their headquarters here, and this, without doubt, is the best point to fit out with everything necessary for the trip, with exception of arms and accoutrements.

Stalking is by all odds the most difficult method of capturing the deer, and is one which calls into play all the sportsman's best qualities. An eminent Scotch writer and hunter, whose kindred excel in deer-stalking, designates the qualities requisite for success in this method of hunting, as follows :

"It may readily be supposed, that for the pursuit of deer-stalking a hardy frame and plenty of pluck are required. These qualities are indispensably necessary ; but in the other points he may vary as much as the average of men are seen to do. The model deer-stalker, however, should be of good proportions, moderately tall, narrow-hipped to give speed, and with powerful loins and well-developed chest for giving endurance and wind. No amount of fat should be allowed ; indeed, the deer-stalker ought to be in as good training as the race-horse and greyhound. The foot should be sure, and the eye keen and long-seeing, as the telescope cannot always be applied to that important organ. He should be practiced in running and stooping, in crawling on his belly, or on his back, by means of his elbows or his heels ; and should care neither for business, cold, nor wet. The nerves should be good, for the excitement produced by this sport is such as to render unsteady the hand of all but those who are of the phlegmatic temperament. 'Dutch courage' is not desirable, but 'Dutch phlegm' will here

serve in good stead. The bodily powers are not the only ones which should be well-developed, for the brain should be active and energetic as the body itself. Great control over the feelings is absolutely essential; for the giving way to exultation and hope, or depression produced by the fear of losing a shot, will generally cause that which is most to be feared. Above all, temperance must be practiced—no shaking hand or flinching eye will serve the purpose of the still-hunter; nor will the parched throat or the perspiring skin avail him when rushing up the hillside or through the winding valley. In fact, strict training, in all its details, is required; and the more it is carried out, the more complete will be the success of the practicer of its disagreeable duties. The dress of the deer-stalker should be light and elastic, yet tolerably warm. The head should be covered with a close-fitting cap or soft hat. The color of all should be sober and natural; grey or a mixture of black and white, or brown being as good as any, since it accords well with the rocks and ground which are so common in the haunts of the deer."

The sportsman should never attempt stalking the Virginia Deer unless he has nerves of steel, is strong, active, and an untiring walker. Not only the greatest walking powers are required in stalking, but it becomes a tiresome gait, as stooping and not unfrequently crawling on the ground for a long distance is necessary in order to reach a particular spot, unseen by the deer. Deer-stalking is simply man *vs.* brute; and requires all the strength, craft and coolness of the man, before he can lay low the deer, who is possessed of a much keener sense of smell, immense speed, excessive nervous organization, and is ever on the alert to circumvent its human foe.

The deer has by no means a quick sight, but his hearing and nose are of the most refined order. The garments of sportsmen should assimilate as nearly as possible with the autumn foliage of the forest; the boots to be worn should be a kind of moccasin with a not too thick, but flexible sole without nails of any kind as nails coming in contact with stones and rocks, alarm the animal before the hunter can get within range. In walking lift the feet well off the ground, and let the ball of the foot touch the earth first; step high, and in fact imitate the Indian's peculiar gait. In shooting never aim at the head of the deer, unless you are a dead shot, as

the heart is as large as the brain, and if the ball misses the brain, the deer continues on his way, apparently as well as ever, or even if the ball has lodged in the face or muscles of the neck, you will still have great difficulty in finding your deer unless accompanied by a dog. This is where the deerhound is so useful, saving the sportsman an all day's tramp after a wounded animal. The Scotch plan is to keep the dogs in leash until the deer is shot, and if only wounded, to slip the dogs, and in a short time the deer will be brought to bay. Many sportsmen and good ones too, take great exception to still-hunting, and some are "down" on the man who silently and carefully watches through the forest up wind for hours and hours, ultimately coming across a deer track, following it up again for hours and hours, finally creeps up to within 100 or 250 yards of the deer and kills it, and lastly by a short cut finds himself fifteen miles away from home or camp, with every likelihood of having to sleep in the forest all night. Is not this sportsman, by all the laws laid down, even by the most fastidious of men, entitled to his game?

It cannot be doubted that sportsmen generally, and especially novices in still-hunting, make the mistake of *hunting too much.* Moving about through the woods has the effect to scare the game away, and in consequence a man may often cover a large tract of good ground and see absolutely nothing. The less "hunting" the more game usually. A dozen squirrels can be shot from the same stand oftentimes, if one will only be content to remain quiet. In deer stalking, too, it is not necessary for a hunter to run the animal to earth as he would a fox. Let him but stand still as soon as he discovers the deer and perceives that he is discovered in turn, and the deer, if not much frightened, will not run far. After she breaks cover she will make a few wild leaps and then stop and turn to ascertain the cause and character of the alarm. She will not run far if not followed, and will remain in the vicinity until her curiosity is satisfied. There is a natural inquisitiveness about animals. They don't become frightened as much through the sense of sight as through the senses of smell or hearing—particularly the first.

Naturalists are the most successful hunters, for in their search for information it becomes necessary to lie *perdu* for hours, in

order to pursue their investigations of the habits of the animals and birds they study. That which is to be most guarded against is giving the animals your scent. It is all important to hunt up wind.

The first light snow of the season gives the hunter a great advantage over the game, and in the case of caribou one has only to dress in white clothes to approach within close range and ensure his success.

When there is no snow on the ground you cannot follow the deer's tracks, but have to move quietly about over ground most likely to be frequented by them, keeping a sharp lookout and reviewing the ground at every step, for in the thick woods you are liable to come on one at any time.

When the ground is covered with soft, light snow, six or eight inches deep, during the month of November, or the fore part of December, is the best time for "still hunting." Then, as you enter the woods, the first thing to be done is to find a deer's track in the snow. The next thing is to ascertain the length of time the track has been made. This requires much experience. If the track is just made, the snow in it, where it has been moved, will look new and bright, but grows dull by age. A good test, when it is cold weather, is to feel of the track with your finger, and if just made, it will be soft; if not, quite hard. One of the best ways to tell if it is a new track is by the manure, if the animal chances to drop any, as it will soon freeze if cold; at any rate, it soon changes its appearance. Having found a track and ascertained that it is new enough, the next thing is to follow it cautiously, travelling at the same rate as the deer travels. An experienced hunter can tell about how fast he has to go to overtake the deer. If the deer is feeding along as he goes and stops to browse at every fallen tree-top, you must move slowly, looking in every place, at every step, for he is not far distant. But, then, if the deer is "travelling," as it is called, one has to walk much faster and scan the ground as best he can. But the chance of getting a shot is less than when one moves slower and looks the ground thoroughly over. To still-hunt with success, to tell in what locality to look for deer in different states of weather, to know when to follow fast and when slow, to know where a deer will be most likely to stop

after he has once started, and to know how to get more than one where there are two together, is only acquired by long practice and judgment. But not more than one in fifty, with all the experience in the world will make a good still hunter. It requires a special adaptation to it. It is very hard work, as it necessitates much travelling. But, then, it is the rarest of sports, and is the most exciting mode of hunting deer.

Minnesota has always been noted for the great numbers of deer found within its limits, and during the late autumn enormous numbers of these animals are killed in that State. When the leaves are falling, the nights cool and the October moon is full, the lordly bucks begin their nocturnal rambles over their favorite runways and scraping grounds in search of the timid does that hide away from them in the thickest "popples" and willow swamps. A little later in the season the deer will be found running in pairs, and then the still-hunter has but to watch the scraping grounds in openings in the forest, and the "jack" oak ridges which are so common in Minnesota and other States. Early in the autumn the deer browse in poplar thickets on the outskirts of the prairie or near the settler's clearings, and at such times they lie very close, often jumping from their beds within a few rods of the hunter. As the season advances and the snow falls, the cold north winds drive them into the heavy timber where they browse on hazel bushes and red willow, (kinnikinic,) the inner barks of which the Chippewa, Sioux, Dakota, Arickaree, and other northern Indians smoke clear, and mixed with tobacco.

When the twigs of the trees become toughened by the cold, the deer browse on species of the white pines, and visit lumbering camps regularly at night to feed on the twigs of the fallen trees. There are several species of fungi that the "white tails" are very fond of, which grow on the white birch and sugar or rock maple.

The speed of the deer is considerable, and it is often spoken of as one of the swiftest of animals. Few, indeed, realize that a good horse in open country can overtake it without very much exertion. Its powers of leaping are enormous, however, and there is one instance at least on record, where a buck cleared a board fence sixteen feet in height. Deer change their feeding grounds somewhat at the different seasons, but cannot be said to migrate

from one district to another. The changes of locality, however, which are made by the different members of the deer family, deserve more close attention than has yet been given them.

If we know that we have but one species of deer in North America that is strictly migratory in its habit—that its members entirely change their habitat with the changing seasons—we have reason to believe that several, if not all of the other members of this family, are more or less migratory in their habits, but to what extent we may consider at present an undetermined question. We think we may safely say that the Barren Ground Caribou is the only American species which is strictly migratory. They occupy the district of country between the Atlantic coast and the Rocky Mountains north of the sixtieth parallel of latitude. They move to the north in the spring, the females in advance, to the shores and islands of the Arctic Ocean, where they drop their young, and in the fall return south, and spend the winter in the lower latitudes, individuals passing sometimes south of the sixtieth parallel.

The Woodland Caribou is undoubtedly migratory, but to a less extent. Sir John Richardson informs us that contrary to the general rule, they migrate north in winter to about the sixtieth degree of north latitude, and south in the summer, yet we think it certain that this migration is not usual as with their smaller congeners of the north, for many individuals at least remain near their southern limits throughout the winter. The great body of those occupying the islands of Newfoundland spend their lives upon the island, though they change their range at different seasons of the year, while some cross the straits on the ice to Labrador.

If our moose or elk are to any considerable extent migratory, the evidence to establish the fact is wanting, although it is well established that the moose seek the elevated ridges in winter, and the low marshy grounds and water courses in summer. We lack the data which would enable us to speak with any assurance of the habits of the mule and the Columbia black-tailed deer in this regard.

The Virginia Deer originally occupied every portion of the United States. It has been more carefully observed than any of the other species. The weight of evidence is, we think, that these deer are partially migratory, though their migrations are limited in

extent and in numbers. They do not entirely desert any district which they occupy at any season of the year, yet in the northern portion of their range numbers seem to change their abode from the north to the south in September and October, for a few hundred miles at least. We shall not stop now to detail the evidence tending to this conclusion. We have found the testimony of all our Indians to be in favor of a general migration of the deer. It is a subject on which little has been written by naturalists or sportsmen.

HARES.

Lepus timidus, var. *arcticus*.—Allen. *Habitat*, Arctic America, southward on the Atlantic coast to Labrador and Newfoundland; in the interior to Fort Churchill, the northern shores of Great Slave Lake and the valley of the upper Yukon.

Lepus campestris.—Bachman. *Habitat*, Plains of the Saskatchewan southward to middle Kansas, and from Fort Reily westward to the Coast Range.

Lepus americanus.—Erxleben: with several varieties. *Habitat* of var. *americanus*, from the Arctic Barren Grounds, southward to Nova Scotia, Lake Superior and Northern Canada, and in the interior throughout the wooded parts of the Hudson's Bay Territories, and Alaska; of var. *virginianus*, Nova Scotia to Connecticut on the coast, the Canadas, and northern parts of the northern tier of States westward to Minnesota, and southward in the Alleghanies to Virginia; of var. *Washingtonii*, west of the Rocky Mountains from the mouth of the Columbia northward into British Columbia; of var. *Bairdii*, the higher parts of the Rocky Mountains southward to New Mexico.

Lepus sylvaticus.—Bachman, with vars. *Nuttalli* and *Auduboni*. *Habitat*, United States at large except Northern New England and the more elevated parts of the Appalachian Highlands.

Lepus Trowbridgei.—Baird. *Habitat*, West of the Sierra Nevadas from northern California to Cape St. Lucas.

Lepus callotis.—Wagler. *Habitat*, United States between the ninety-seventh meridian and the Sierra Nevada Mountains, and from North Kansas and the Great Salt Lake Basin southward into Mexico.

Lepus californicus.—Gray. *Habitat*, California west of the Sierra Nevada range, south to Cape St. Lucas, Lower California.

Lepus palustris.—Bachman. *Habitat*, South Atlantic and Gulf States.

Lepus aquaticus.—Bachman. *Habitat,* Gulf States south through the lowlands of Mexico to Central America.

The above list of the Hares of North America found north of the southern boundary of the United States, is drawn from Mr. J. A. Allen's recently published study of the genus, and includes all that the sportsman will be likely to meet with.

Hares are grey, or brown, but their specific distinctions are so slightly marked, that it requires the eye of a practiced naturalist to distinguish between two nearly allied species. For this reason no detailed description is given of the different species and varieties above mentioned. Of all those of which we have spoken, but three, to be mentioned hereafter, turn white in winter.

Among all the numerous representatives of the *Leporidæ,* which are found in every section of our country, we have no true rabbit. Hares are common in all parts of the United States and the British Provinces, but they all differ in essential particulars from the Rabbit proper, *Lepus cuniculus* of Europe. Briefly, some of the distinctive traits are as follows, and may be classed roughly under two heads :—first, anatomical differences, secondly, difference in habit. Of the first, it is unnecessary to speak at length, for its truth is well known to such as have examined the structural features of both. In habit, there is also a wide difference. Hares do not live in burrows, as is the case with the rabbit, but lie in a form, in bush, or thicket, a slight depression in the ground frequently serving for a nest, or occasionally they select a hollow stump or the under side of a detached ledge of rock as a domicile. The young when they first make their appearance are covered with hair, their eyes are open, and they are able almost immediately to support themselves. On the other hand, the rabbit is born naked, with closed eyes, and requires the constant attention of the mother for some time.

The Hares are not so prolific as the Rabbits, the female bringing forth but from three to five leverets at a litter, the *Lepus cuniculus* bearing from five to eight. Hares feed generally at night, lying in their forms in some bush or copse, during the greater part of the day. The Rabbit, on the contrary, generally remains ensconced in the warmest corner of the burrow during the dark hours.

Of the principal representatives of the genus in this country

may be mentioned the following, *Lepus sylvaticus*, the ubiquitous cotton tail found generally distributed throughout almost all sections of the United States. *L. americanus*, the common large Hare of the east and north-east, which changes its coat in spring and fall. *L. timidus* var. *arcticus*, the great northern Hare, *L. campestris*, the "Jack Rabbit" of the plains, *L. callotis*, the "Jack Rabbit of Texas and California, and two southern swamp species, *L. palustris* and *L. aquaticus*. Of these, the species which change color on the approach of winter are *L. americanus*, *L. campestris*, and *L. timidus* var. *arcticus*. Pending the complete change from the summer brown to the snowy white coat of winter, the animal presents a very singular mottled appearance.

Hares are becoming a very important article of commerce, and during the winter season tons of them are daily shipped to our principal markets from all quarters. They are sold at cheap rates, and are frequently peddled around the streets by the cart load at astonishingly low figures.

The methods of pursuit and capture of these animals are very numerous, but of the most common and successful, three may be mentioned; viz.: trailing in the snow with dogs, hounding, and coursing. To trail hares in the winter, one must have dogs with fair noses, and a light fall of from two to four inches of snow must have been deposited the night previous to an early morning start. Two or more hunters start out equipped thus with dogs and guns. Thickets of elder and blackberry are sought where the game is known to lie. A hunter skirts each border of a patch and the dogs are sent in. As soon as the hares are started, the dogs follow the trail and drive them from cover, and on emerging from the brush they give the gunner the best of chances. We have known of forty hares having been killed in following in this manner, a mile of hedge. Where the ground is rocky, they will try to hide by running into any hole or crevice which may offer an asylum.

Hounding hares is generally carried on in much the same manner as deer driving. The hunters are stationed at various points on the paths, for hares, like deer and foxes, follow regular beaten tracks. The hounds start the game from belts of pine, cedar or hemlock. Each hunter waits for the animals to pass his station, and in case he is in a lucky place the shot is fired as bunny goes

by at full run. He is bagged and the position taken again. It might be added *en passant* that this ability to tumble a hare at full speed with the shot-gun is no mean accomplishment. Bags of twenty and thirty are sometimes made in this way in the course of a morning.

Of trapping and snaring there are so many methods and appliances that it is unnecessary to attempt a detailed description of these various engines of destruction. They are principally employed by pot-hunters, and many make it their sole business during the winter months. Coursing hares is carried on to some extent in the West by garrison officers who are the owners of grey or deer-hounds. The animal pursued is the "Jack Rabbit," whose disproportionally great ear-development has earned him this title, Jack being jackass in brief. The topographical lay of the land is highly favorable to this sport, but the legs of the hare frequently discomfit both horse and hound.

The two Southern varieties of the hare tribe *L. aquaticus* and *L. palustris*, are hunted a good deal by the darkies, but every man has his way of catching the "varmint," and owing to their habits they are not systematically pursued. Of the Great Arctic Hare not much is known. It inhabits the white wastes and snowy solitudes of the far North. Its companions are the snowy owl, the Caribou, and the Musk Ox. Unlike the prairie marmot and burrowing owl, however, who are fast friends, the rodent of the North and the great white owl are not congenial comrades. In short the bird loves the beast too fondly, and her caresses are generally carried to such an extent that within an hour after the commencement of one of their little *seances*, bunny finds himself in a semi-digested state in the membranous stomach of *Nyctea nivea*.

SQUIRRELS.

Sciurus vulpinus.—Gmelin. The Southern Fox Squirrel.
Sciurus cinereus.—Linn. The Cat Squirrel.
Sciurus ludovicianus.—Custis. The Western Fox Squirrel.
Sciurus carolinensis.—Gmelin. The Grey or Black Squirrel.

THE Southern Fox Squirrel inhabits the Southern States from North Carolina to Texas. It is the largest and finest of our North American Squirrels. The length of the head and body is twelve inches, and that of the tail fifteen. Its color is oftenest grey above and white below, but it is also found of all shades of fulvous, and is sometimes a deep shining black. Its ears and nose are always white.

The Cat Squirrel is found in New Jersey and Virginia, and west to the Alleghanies. It is about the length of the preceding species, but is more heavily built, and has a somewhat shorter tail. In color too, it resembles the Southern Fox Squirrel, but its ears and nose are never white.

The Western Fox Squirrel occurs in the Mississippi Valley. It is about twelve inches long, with a tail of about the same length. Its color is rusty grey above and bright ferruginous below. Ears and nose never white.

The Grey or Black Squirrel is found throughout the wooded portion of the United States east of the Missouri River. It is about ten inches long to the root of the tail, which number exceeds by about an inch the length of the head and body. The usual color is pale grey above, and white or yellowish white beneath, but the individuals of the species grade from this color through all the stages to jet black.

The above mentioned varieties of the Squirrel tribe are the only ones which are followed for the bag or pot. The Fox and Cat Squirrel are never met with in the Eastern States, but are the common species of the Mississippi bottom lands, and the southern

sections of the country. Grey and black squirrels are often found associating together. They are in every respect alike, in the anatomy of their bodies, habits, and in every detail excepting the color, and by many sportsmen they are regarded as distinct species. Naturalists, however, at present agree that the two are identical, and that the black form is merely due to melanism, an anomaly not uncommon among mammals.

Squirrels feed in the early morning just after sunrise, and disappear soon after eight or nine o'clock, retreating to their holes or nests, there to remain during the midday hours. They appear again in the late afternoon to feed, and may be heard and seen playing and chattering together till twilight. They are very shy and are not easily approached, but one may seat himself in full view, and if he remains without motion, the squirrels will reappear, and take little notice of the intruder; at the slightest movement, however, they are off. This fact is taken advantage of by the sportsman, and be he at all familiar with the runways of the squirrels at any particular locality, he may sit by the path and shoot a goodly number. We have known of eighteen, both grey and black, having been secured at the entrance to a cornfield by two individuals in this way during the first hours of morning. Grey and black squirrels generally breed twice during the spring and summer. They have several young at a litter. The young mature in August and September, and the season for shooting is fall and winter, although a great many are killed during August when young and very tender.

The migrations of Squirrels have never been satisfactorily explained. What instinct brings together such immense droves of these animals from all parts of the country, and causes them to move with solid phalanx to distant localities, overcoming all opposing obstacles? A few years since, there was witnessed a wonderful sight by the inhabitants of Pike County, Pennsylvania. An immense army of Grey Squirrels arrived at the banks of the Delaware River late one night, and commenced its passage by swimming the following morning. The whole population turned out, and boys and men, equipped with large grain sacks and clubs, killed them by thousands. They kept coming in a continuous stream throughout the morning, and passed on to the woods

beyond. Nothing could deflect them from their course, and they were evidently bound for a fixed point. A similar instance occurred not long ago in the west, where a vast assemblage crossed the Mississippi and were killed in great numbers in the back yards of the village houses. Of course, the first and most obvious explanation is, that these migrations are caused by scarcity of food, but it is probable that this is not the only motive which induces them to undertake such extensive journeys.

As with the pursuit of Hares, there are numberless devices for accomplishing the capture of squirrels. Sportsmen who are fond of this department of *La venerie*, use either rifle or shot-gun, as their skill in handling one or the other may warrant, but the important factor in this animal pursuit is the small cur-dog trained for the purpose. He will run ahead through bush and wood, tree a squirrel, and after barking sharply, wait for the master to put in an appearance. A squirrel thus treed will run up the trunk a short distance, and curling himself down on a limb, will watch his canine pursuer, unmindful of the approach of the death dealing biped. When the squirrels are quite young and inexperienced, a good bag can sometimes be made without a dog. Seat yourself near the point where the woods skirt the cornfield or wheat stubble in the earliest morning—or perhaps among the beech trees, where at this season the mast is tender and succulent, and the animals will give you plenty of chances. Still they are not very generally hunted till the later months. When treed by the hunter they are very skilful in secreting themselves from view, and the grey species particularly, being so near in color to the bark of many of our forest trees, is exceedingly difficult to detect, and both he and his black brother are always careful to keep the tree trunk between themselves and the intruder. A dog's presence, however, seems utterly to upset all calculations of concealment, and they will sit on a limb and not attempt to hide, knowing the inability of the cur to do them harm. The cruel method of smoking out, is often made use of in squirrel hunting by the farmers' sons in winter time, when the animals are snugly curled up in their nests. A squirrel tree is selected which has two or three holes above, and is partially hollow to the foot. An axe soon makes an opening below, into which straw, leaves, and grass or green twigs

are introduced. This is then fired, and the hollow trunk acting as a chimney, creates a draft and the smoke is soon seen curling lazily from every hole and crevice. The poor inmates, sometimes to the number of six or eight, endure the torture as long as possible, and are finally forced, singed and smoking, to seek safety in flight from their wood-locked home. The yelling demons below, armed with guns, sticks, clubs, and all manner of destructive implements, soon finish the half roasted creatures, who are so confused on reaching the open air, that they do little more than drop to the earth. Sometimes they remain so long in the tree, that their claws are burned off and being unable to hold to any thing, they fall helpless to the ground, and the horde of savages pounce upon the unfortunates. The charge of shot from the old Queen Ann, or flintlock musket, is saved this time for the next victim, who may not be quite so much cooked and helpless.

OPOSSUM.

Didelphys virginiana. Shaw.

THE Opossum is the only member of its order, the *Marsupialia*, which inhabits North America. It is confined to the southern portion, its range not reaching much north of the Ohio River on the west or New Jersey on the east. It is probably never found east of the Hudson River. Other species of the genus inhabit South and Central America, and one, doubtfully distinct from that of the Southern States, occurs in California and Arizona.

This animal is about twenty inches long to the root of the tail, which appendage is fifteen inches in length. The color is pale greyish, the hair being nearly white with brown tips. The tail is nearly naked and is prehensile; and the general aspect of the creature is rat-like.

It is with a certain feeling of sadness that we chronicle the dying out, one by one, of old customs and habits. Each year old usages give place to new, and the change certainly in very many cases is not for the better.

The Opossum can hardly be classed among the game animals of America, yet its pursuit in the South in old plantation days used to afford the staple amusement for the dusky toilers of the cotton States. It was the custom in *ante-bellum* times, as often as the revolving year brought round the late fall days with their ripened fruit and golden grain, for the dark population of the plantation, occasionally accompanied by young "massa," to have a grand 'Possum hunt *a la mode*. This custom, through desuetude and change of circumstances, has been well-nigh consigned to oblivion, and we cannot but regret its death. The opossum is not often found north of Maryland and Virginia, but is rather abundant south of these States.

Its food, upon which it becomes fat and toothsome to the dusky

palate, is persimmons and wild grapes, together with the various berries and fruits that abound in the Southern States. After the first hoar frost has whitened the hills the 'possum is most eagerly sought for by Cæsar, Pluto, and Mars. At night the darkies start forth *en masse*, armed to the teeth with every available weapon, and accompanied by a number of nondescript dogs, generally well trained for 'Possum or Coon hunting. These dogs have some hound blood in their composition, and understand the requirements of the occasion perfectly. Some ancient shade of Dis with snowy hair is selected as leader, and he controls the dogs and manipulates the horn. The favorite haunts of the "varmint" are familiar to the negroes, and the "meet" is generally held on the borders of the swamp where persimmons abound, or, if the moon shine too brightly for the game to venture far from cover, in the darker vales where the luscious grapes run wild and plenty.

The dogs range far from the party, and the moment one of them strikes the "trail ob an ole 'Possum" he gives the signal note to the expectant party by a short yelp. This sets the sable hunters wild with excitement; they listen for the second sound, sure to come, which will betoken that the varmint is treed. They are not long kept in suspense, for faint away down in the valley comes the joyful bay, and at the signal the whole party stampede, spite of all "Ole Uncle Cæsar's" attempts to restrain them, and rush pellmell through bush and brake in the direction of the sound. They arrive panting and breathless from the wild race, in twos and threes, and are soon all assembled at the foot of a small sapling, in the branches of which the 'Possum has taken temporary refuge from his pursuers.

Soon a nimble young buck shins the tree, and the marsupial is shaken off after some difficulty, for he clings with the utmost tenacity to the limb, using the tail not the least in this battle for freedom. The anxious dogs below await his fall, and his death is compassed in less time than it takes to tell it. This is the only method employed in the capture of the Opossum, and this is rapidly becoming traditional.

GAME BIRDS OF NORTH AMERICA.

WILD TURKEY.

Meleagris gallopavo.—Linn.

THE Wild Turkey is by many regarded as the finest game bird on this continent. Large, with burnished plumage, spurred and bearded, he is a magnificent fowl. The flesh is tender and juicy, and as gamey in flavor as a partridge. His endless variety of food makes it always procurable, and in season he is never found thin in flesh. To hunt him successfully in regions where he is much sought after and shot at, requires the utmost skill and tact on the part of the hunter, and an intimate knowledge of all the habits of the bird. Exceedingly shy, with a keen eye, an acute sense of hearing, a quick flight and a fleet foot, he is extremely hard to get within range of. After many hours spent in calling or stalking him, just at the moment you think he is safe for a "bag," a slight movement or exposure of part of the body of the hunter, the breaking of a dry twig or the cocking of your gun, is sufficient to alarm him, and he is off instantly.

In the spring when they "pair off," is perhaps the most favorable season for hunting them. Many are often killed in the autumn before they are fully grown, when they become comparatively an easy prey to the hunter, who coolly knocks them off from the trees in which they will alight when frightened. They are occasionally hunted by parties who, obtaining sight of a flock, watch them carefully so as not to disturb or frighten them until they go to roost, and deliberately pick them off; but this hardly seems to be sport. The necessary equipments for stalking are a good gun, a turkey call, clothing as near the color of dead leaves as possible, and some knowledge of the habits of the game.

Time was when this most delicious, as it is the largest, of all our gallinaceous game, might have been taken in almost any State east of the Rocky Mountains; but now, the would-be Wild Turkey hunter must seek his game in the Southern and Western portions of our Union. In the Southern States, especially Florida, any one, even the veriest pot-hunter, may secure his bird provided he has money enough. The sudden appearance of a flock of Wild Turkeys upon the banks of the St. Johns, as the steamer rounds some wooded point, is not of uncommon occurrence.

Their relative abundance in any particular locality depends upon the supply of their favorite mast—nuts, acorns, etc., and the seed of the palmetto, wherever found. Their presence is indicated to the experienced hunter by their "scratching places," and he can tell by the freshness of these, and the character of the surrounding forest, where to look for them. In October, the males have in a great measure recovered their strength and plumpness, the females their good condition, and the young are able to take care of themselves, and, withal, are tender and juicy. Then according to Audubon, the males and females hunt in separate parties. At this time the gobblers may be enticed within shot by the hunter lying concealed and imitating the clucking sound of the hen. Of the various methods employed, probably this is the most successful, though even this may be better used in spring. Old hunters are adepts in the art of calling, and their peculiar inimitable call is something the gobbler is hardly proof against, provided the hunter lies close. Sometimes, however, he will answer the call without putting in an appearance, thus depriving the worthy hunter of his meal. The best call, by the way, is made from the wing-bone of the turkey itself; though tolerably good ones may be obtained from dealers in sporting goods.

The old style of trapping the bird in pens, is of course, out of the question, except to residents in a good turkey country.

Shooting by moonlight, also, is only to be indulged in by the occupants of turkey-haunted sections; though those favored beings whose lives are cast in such places, may depopulate an entire neighborhood in a short time.

Probably the most sportsman-like method of procedure would be to hunt with dogs, though, even then, the sport savors of pot-

hunting, as it is rarely a wing shot can be procured, for the turkey soon takes to tree, and must be sought out, like the ruffed grouse when in similar position. Like the grouse, too, it remains perfectly immovable, and is overlooked.

It is in early spring, and early in the morning, when the gobblers are saluting each other from the different tree-tops, that a good hunter may expect sport. Then his success depends upon his skill in threading the tangled thicket without noise, and in nearing the wary bird unperceived. If he wishes to bring that bird to bay, he must move with the rapidity of a deer, when necessary, and at times stand motionless as a stump; for there is no more suspicious bird than an old gobbler that knows that he is informing a whole forest of his presence. It may be unsportsmanlike; it may be pot-hunting; but there is a deal of satisfaction in seeing a plump fifteen-pounder drop from his airy perch at the report of your gun—especially when you need his presence in camp. Frank Forester says, "that, though he is always delighted to see a well roasted turkey on the board, especially if well stuffed with truffles and served up with well dressed bread sauce, he would not give the least palatable mouthful of him—no, not his ungrilled gizzard—to pot-hunt a thousand in such a style." But then he never shot one. The weight of the hen turkey, full grown, should be about ten pounds. Gobblers, from fifteen to twenty; though instances are related of the capture of thirty-five pounders. Though a full grown bird will carry away a heavy load in the body, a charge of an ounce and a half of number two shot, backed by three drachms of good powder, well placed in the neck or head, will always prove effective. Even number eight shot have proved too much for young males, though hunters generally prefer buck-shot.

When full grown, the wild turkey averages probably twenty pounds in weight, and he not unfrequently is found weighing as high as twenty-five or six.

The plumage is very dark, nearly black in many cases, and glossy; the usual color is a bronze deepening into greenish black. The hens are duller in color than the gobblers.

A pair of turkeys raise from ten to twenty young in a season. So wary and watchful are they that it is seldom an opportunity

can be obtained in which to observe them when in their domestic relations. Their habits are therefore unknown to many. Severe battles often take place between the gobblers to determine which shall be the happy spouse of some hen that watches without seeming interest the struggle going on for her sake. The victorious hero, strutting proudly by the side of the well pleased hen, becomes so much excited over his victory, that the red and white of his head and neck assume a deep purple. With tail spread to its utmost extent, and one wing sweeping the ground, an old gobbler presents a fine picture of self-satisfaction and pride.

A spot in the far off mountain is selected under a sheltering log or jutting rock, the dried leaves and grasses of the last fall are scooped out, and in the hollow thus formed the eggs are deposited. These number from ten to twenty, and are most carefully guarded by the mother. In leaving or approaching the nest, she always makes use of a circuitous route, and the eggs when left alone are always covered with dead leaves to protect them from the prying eyes of prowling opossum or crow, who would make short work of the clutch if the opportunity offered.

As soon as the young are hatched, a spot easier of access is sought where the young birds may obtain food more readily. Both parents take great interest in the growth and progress of their young family. The wild turkey is more hardy than its domestic cousin, and the rains of spring and the early summer months affect the health of the young brood much less than our tame and domesticated varieties. A dry season is preferable for their rapid development. At one month old the real trials and dangers of the young family begin. At this age there is sufficient good eating in the young turkey to make the chops of Reynard water with delight, and the numerous hawks are not insensible of their delicious flavor.

The young birds are exposed to the greatest amount of danger in the latter part of August and the first of September; they are then about the size of a common barn-yard hen, and are an easy prey for the hunter. A flock of half grown turkeys startled by the approach of any one, will take immediately to the nearest trees, and can be shot one after another from their perches. This mode of slaughtering the poor birds is poor fun and a disgrace to a true

sportsman. Five turkeys at that season will about equal one good one killed during the months of November and December. The two last named months are the ones in which the turkey ought to be hunted.

In the morning after the snow has covered the ground to the depth of an inch or two, is the best time to start upon a hunt for wild turkeys. They will then be actively searching for food, and every movement and turn may then be traced in the snow. Great caution is necessary in approaching them; their sight is excellent, and their hearing good. Many a fine gobbler is lost by the cracking of a twig or the movements of the hunter. Every precaution should be taken to see as far ahead as possible without being seen. If provided with a turkey caller, it is well every now and then to see if an answering "keouk" cannot be obtained. If the hunter be fortunate enough to get within shooting distance, let him take deliberate aim at the head (if provided with a rifle). But the possessor of a shot gun should aim to cover the whole body. After being mortally wounded, a turkey will frequently run or fly for half a mile, but in a straight line. And very many turkeys are thought to have escaped injury, when by a careful search they might have been found dead a short distance from the place where they received the fatal shot.

The "call" which is used to entice the gobbler within shooting distance is made in a variety of different ways. The small bone from the wing of the turkey makes a very good caller by putting one end into the mouth and drawing the air through it, but the best one can be obtained by sawing about two inches from the end of a cow horn, then cut a piece of a shingle so as to fit the small end of the piece sawed off, bore a hole in the middle of the shingle, and insert a stick about the thickness of a ten penny nail, allowing the end of the stick to come through the piece of horn and to project a short distance beyond the open end. Put the end of the stick thus projecting upon a piece of slate and the sound produced thereby is the best imitation of the "keouk" of a turkey known.

October is, all things considered, the best month for "calling" Wild Turkeys, although some sportsmen prefer the spring. Now, as all the devices which man employs to allure and ensnare the

victims he pursues are but imitations of what nature has given her creatures for specific purposes, it becomes us to inquire and understand the character of these peculiarities and learn why they are bestowed; and by our investigations to determine the periods when game is in season. For instance, the call of the turkey may be either the warning note of the mother to her collective brood, as in the autumn, or the invitation and response of the wooing as in the spring. At the latter season, all birds are full grown, and the yearlings are in their prime. In October the flocks have not yet scattered; the young turkeys, though large and strong of wing, are not fully grown, and the family circle remains unbroken. In both cases, it is apparent, the birds are noble and legitimate game. A turkey-call is easily imitated by using the hollow of the two hands placed together; but these devices can only be learned by careful attention and practice. The early morning is the best time of day for calling, as indeed it is for all manner of hunting.

Besides the ordinary method of capturing the turkey, detailed above, there are others only to be employed where the birds are very abundant. In Texas and the "Nation," as the Indian Territory is often called, they are shot at night from their roosts in considerable numbers. They are also trapped in the following way. A spot must first be found where the Turkeys are accustomed to "use." This will always be found to be an unfrequented place and near some swampy or large forest growth, where they may find high trees to resort to when alarmed by the approach of huntsmen and to roost in at night. Having found such haunts and feeding grounds, the baiter scatters peas, wheat, or corn about in small quantities in different marked places, and occasionally visits are made to the places to see if the bait has been eaten. If so, and by turkeys, it is easily determined by the signs of scratching away of the leaves in all directions in search of more food. If the bait has been eaten, re-bait at once. They will soon begin to resort to such places for food. Having once gotten them to do so, then make a pen of old weather-beaten fence rails, or something of the sort, using nothing to make the pen of new or fresh cut stuff, as they are very cautious and will not venture near it. Having gotten the rails on the spot, dig a trench eighteen inches deep

and about as wide, and four or five feet long with a slope from the outer end, deepening to the middle ; then lay across it the rail. Lay one rail as the width of the pen and two rails as the length (ordinary fence rails, ten to eleven feet long), building the height of eight or ten rails, and covering it over with the same sort of stuff, sufficiently close to prevent the turkeys from getting out when once in. A few cross rails as weight to keep the top down is always necessary, for when alarmed at the approach of the trapper it will take a good amount of weight to keep them in prison. Now, having completed your pen, take care to remove and cover up every vestige of the freshness of your operation, throwing in a light covering of dry leaves in the trench you have made under the pen. Then scatter more of the same kind of grain before baited with, under the fence and a larger quantity in the pen. It may be some days before the turkeys will venture up —but they will, if not often visited by the huntsmen. When they have made themselves somewhat familiar with it, and get up courage and get on the train of bait leading to the mouth of the trench, with heads down eagerly picking up the grain, they will thus go under the fence in quest of food, not raising up till inside. Once inside (perhaps a half dozen), they begin to look up for a way of escape, never for a moment *looking down* for a place to get out. Not seeming to know how they got in, they walk round and round, and frequently walk or hop over the trench through which they entered. The trapper then has them at his will and may take them at his pleasure. Another mode is to get them to a bait. Build a blind of old brush and cover for the hunter to sit in, entirely concealed from all quarters ; making a straight line of bait, and all in a circumscribed distance from the blind, so as when the turkeys come to feed all will be in a line, which they will do if the bait is properly laid. When they are picking up the food he watches his opportunity to get as many heads together as possible while down, and using No. 6 shot he may get several at a shot.

Yet another mode of hunting is in use, viz : hunting with dogs —pointers or setters are best, because more easily trained. The dogs find and flush the turkeys. Taking to the high trees, keeping an eye on the dogs while they are running around barking at the turkeys up the tree, they being so much engaged in watching the

dogs, the huntsman can come up in shooting distance and kill his game. Take it whatever way they may, a good fat Wild Turkey is no mean game to take home, whether after patient waiting or a long tramp.

All of these methods, however, have so strong a flavor of pot-hunting about them, that the sport of turkey killing, unless the arm employed be the rifle, or the bird be shot on the wing, would probably present but few charms to many of our readers. Still, old turkey hunters, and some of the best and keenest sportsmen of the South and Southwest come under this head, are wonderfully enthusiastic about this sport, and declare that there is no game bird equal to the Wild Turkey.

It is from the bird of the extreme Southwest, New Mexico, Arizona, and Mexico, that the domestic Turkey seems to be descended. It differs from the Eastern variety in the coloration of the tips of the upper and lower tail coverts and tail feathers, these being white in the former while they are fulvous or chestnut red in the latter. Dr. Coues has determined the two former to be merely varieties of the same species, the Eastern race having been called *Meleagris gallopavo* var. *Americana*, and the Western *Meleagris gallopavo* var. *gallopavo*.

GROUSE.

GROUSE are beyond all question the finest game birds of which we have any knowledge. They are large birds, of delicate flavor, are swift flyers, often hard to hit, and above all they give out a strong scent and usually lie well to a dog. The true grouse are confined to the northern hemisphere, and attain their greatest development in North America, no less than nine well-marked species being natives of this country. This family includes also, half a dozen species of Europe and Asia, the Cock of the Woods (*Tetrao urogallus*), the analogue of our Sage Grouse (*Centrocercus urophasianus*), the Black Cock (*Tetrao tetrix*), the Siberian Pine Grouse (*T. falcipennis*) the *Bonasa betulina* of Europe and Asia, and several species of Ptarmigan closely related to those of our own country. The Grouse may be distinguished from any of their relatives by the more or less dense feathering of the tarsus and the groove for the nostril, by the presence above the eye of a strip of naked yellow or red skin, and by the pectinated margins of the toes. In addition to these peculiarities several species possess curious tufts of feathers on the side of the neck, and some have under these feathers, air sacks which are capable in the breeding season of great distention.

Canace canadensis.—Reich. **Canada Grouse, Spruce Partridge.**

The Canada Grouse is a northern species nowhere very abundant. Its favorite haunts are the dense swamps of Canada, Northern Maine and the Adirondack region, where grow the pine, spruce and tamarack, on the buds and leaves of which it feeds. These swamps are so wet and soft, and the mud in them is so deep that it is often impossible for man to traverse them ; the Canada Grouse, however, runs lightly over the green moss which carpets the ground, and is here secure from the pursuit of any but winged enemies. This species is therefore, scarcely or not at all hunted except during the winter when the extreme cold of the regions which it inhabits

has frozen the ground, and has furnished a secure footing for the sportsman. The Spruce Partridge is said to be very much more gentle and unsuspicious than any of its congeners, and does not seem to recognize man as an enemy.

The male of this species is about sixteen inches in length. The prevailing color of the plumage is black or blackish, marked below with numerous white bars and streaks, and waved above with dark grey; a broad band of orange brown extends across the extremities of the tail feathers. The female is somewhat smaller, and her plumage is waved with black, brown and buff. Variety *franklini* of the northern Rocky Mountains, differs from the Eastern bird in lacking the broad terminal orange bar on the tail, and in having the upper tail coverts which are black in *canadensis* spotted with white. It is but little known.

Canace obscura.—Bon. Dusky Grouse, Blue Grouse, Grey Grouse, Mountain Grouse, Pine Grouse, Fool-hen.

This species is certainly one of the finest birds of its family. Its flesh is almost entirely white; as much so as the ruffed grouse or the quail, and has a peculiar tenderness and flavor. The breast is remarkably full, and the whole body compact and plump. The feathering is close and thick, wings and tail short and square, the latter a beautiful fan when spread, like that of the ruffed grouse. Its food and habits are nearly the same as those of the latter bird, consisting of insects and the berries and seeds of the pine cone, the leaves of the pines, the buds of trees, etc. It has also the same habits of budding in the trees during deep snows as the ruffed grouse, which are so often shot while thus engaged on winter moonlight nights in the orchards of New England. With the blue grouse, however, this habit of remaining and feeding in the trees is more decided and constant, and in winter they will fly from tree to tree, and often be plenty in the pines when not a track can be found in the snow. If a trail ends it is time to begin to look in the trees, and look sharp, too, for it takes keen and practiced eyes to find them in the thick branches of the pines. They do not squat and lie closely on a limb like the quail, but stand up, perfectly still, and would readily be mistaken for a knot or a broken limb. If they move at all it is to take flight, and with a sudden whirr they

are away, and must be looked for in another tree top. One may sometimes shoot half a dozen times with a rifle at the same bird, aiming at the head to avoid tearing the flesh, but there will be no sign of motion unless hit. When there are several upon the same tree, if the lowest is first shot the others are not disturbed, and may be picked off one by one; but if an upper one falls past them they are instantly off. In autumn, when nearly or quite grown, and the pack are unbroken, if met with in open ground, they lie well before a dog, and furnish excellent sport. When flushed, their flight is swift and straight, and they are easily shot, but if timber is near they are sure to make for it, and when in the trees a sitting shot is the only sure one. Should they fly, a single glimpse through the thick pine branches would probably give the only chance.

In common with the ruffed grouse, the packs have a habit of scattering in winter, two or three, or even a single bird, being often found with no others in the vicinity, their habit of feeding in the trees tending to separate them. The size of the blue grouse is nearly twice that of the ruffed grouse, a full grown bird weighing from three to four pounds. Its plumage is very beautiful; indeed, that of the male in winter and spring is perfectly magnificent. The feathers are very thick, and upon the neck, back, and wings a lustrous blue black, glistening like satin. Beneath the color is a dusky brown, but whitish under the throat, the legs fully clad, and the feathering extending into the toes. It seems fitly dressed to endure the rigor of its habitat, which is the Rocky Mountain and Sierra Nevada country only, and in the pine forests from five to ten thousand feet above the level of the sea. The latter height is generally about the snow line in these regions, and at this latter elevation is found the ptarmigan (*Lagopus leucurus*), rarely seen because his home is rarely visited. Although the weather in the mountains is often mild and pleasant in winter, and especially healthy and agreeable from the dryness and purity of the atmosphere, yet the cold is sometimes intense.

The nests of the Dusky Grouse are upon the ground, usually well hidden in a thicket, and the broods about one-third larger than those of the sage hen, generally from twelve to fifteen in number. The eggs are of a creamy white color, speckled all over with dots of chocolate-brown.

The females with their young usually pass the night in the creek-bottoms, and it is in such places that they must be looked for early in the morning and late in the afternoon. About nine or ten o'clock A. M., they proceed on foot to the uplands, where they remain until about two hours before sunset, when they come down to the stream to drink, and remain all night. In returning from the hills, they always fly. The young, when alarmed or uneasy, have a fashion of erecting the feathers of the sides of the neck just below the head, which, when seen at a little distance, gives them a very odd appearance. The female, when the young birds are nearly approached or captured, makes no attempt to draw away the enemy by any of the artifices employed by *Bonasa umbellus*, but contents herself with wandering anxiously about at a short distance, holding the tail quite erect, and clucking after the manner of the domestic hen under similar circumstances. The young when well grown are delicious eating. When a brood has been scattered, the individuals which compose it lie well and furnish fair shooting. Though swift fliers, they are easily killed in the open. The birds will often allow one to approach within three or four feet of them before rising, and they are beautiful objects as they crouch, waiting for the sportsman to take one more step toward them. The body flattened out on the ground, the head and neck straight and pressed against the earth, the tail slightly elevated, and all the while the bright brown eye watching for the slightest sign that the bird's presence is discovered, together make up a most attractive picture.

The Blue Grouse is more or less abundant throughout the Rocky Mountains, extending northward to Alaska, and south nearly to Mexico. It is perhaps nowhere more numerous than in Montana, in which territory one may sometimes see twenty broods in a day's travel.

The true Dusky Grouse has a broad terminal band of grey on the tail, which variety *Richardsonii* lacks; the two forms are, however, very similar, and grade into one another in the Central Rocky Mountains. The length of the male of this species is about twenty inches, the female being somewhat smaller, and being varied above with black and tawny. Mr. Ridgway has recently described a third variety from Alaska under the name variety

fuliginosus. This form is much darker than either of the preceding, but is otherwise similar.

It would be interesting to test the acclimatization of this beautiful bird in the pine forests of the east. Though too wild and shy to be domesticated, it is not more so than the ruffed grouse, and if protected, there is no reason why it might not live and thrive in any pine lands where the latter bird is found. Its present habitat is so vast, and much of it so inaccessible, that its numbers are not likely to be materially lessened by sportsmen, and its natural winged and four footed enemies will be as much or more exposed to destruction by man, so that we may look upon it as a permanency in its present home, and since the mountain passes are becoming threaded with railroads, and miners, herders, and other settlers are scattering through the country, it will be far easier than it has been to secure and transport live birds or their eggs. It is to be hoped the experiment will be tried.

Centrocercus urophasianus.—Swainson. Sage Grouse, Cock of the Plains.

This species is the largest of the North American Grouse, and yields in size only to the giant Cock of the Woods, or *Capercailzie* of Europe. In the early season, that is in August and the first half of September, it furnishes fine sport, for it lies well, and when it rises flies so straight and steadily that it is very easily secured.

The male bird is over two and one-half feet long, and weighs seven pounds or more; indeed specimens are sometimes said to attain a weight of over ten pounds. The upper parts are variegated with black, brown and yellowish grey; the sides of the lower part of the neck are whitish and are furnished with curious stiff feathers, each of which terminates in a long hair or bristle. The lower part of the breast and the abdomen are black. The females and young males of the first autumn are smaller and lack the stiff neck-feathers of the old males. Such in brief are some of the principal characteristics of this fine Grouse.

The Sage Grouse is an inhabitant of the high dry plains of the interior, which are covered with a more or less thick growth of the sage brush (*Artemisia tridentata*). On the leaves and buds of this shrub the Grouse chiefly feed, sometimes varying their diet with grasshoppers and berries or the buds of the willow and

greasewood. This peculiar diet is said by some to affect the taste of the meat, as the pine buds on which the Spruce Grouse feeds do its flesh. We have never noticed the disagreeable flavor referred to, and it is probable that it will never be noticed if the following course be adopted with the game. Immediately after killing draw the bird, thoroughly removing the intestines and their contents, but delaying all other dressing till camp is reached. Treated in this manner it has no disagreeable taste. This is what we should expect when it is recollected that in all animals, the peculiarities of food pass off by secretions through the natural channels. The milk and butter of a cow feeding upon wild garlic, cabbage, rag-weed, etc., will be tainted with their peculiar qualities but the flesh is not. So when the bird is dead the operations of the body cease, absorption commences and the contents of the intestines begin to affect the flesh. The power of life to resist absorption and decay are wonderful. A live fish in salt water continues fresh. The rubbing of salt upon a live hog's back would hardly cure the meat, but when slaughtered it takes up the salt through skin and flesh alike. But perhaps too much upon this familiar principle, unless it serves to redeem this magnificent bird from its unlucky reputation. The flesh is quite dark and rather dry, but when the bird is about two-thirds grown, with the bitter taste prevented in the manner described, it is not easy for a hungry man to find fault with it, especially in camp.

During the summer and autumn, the Sage Grouse congregate in packs of from ten to twenty, usually all members of the same brood. At the approach of winter, however, the packs become very large, several hundred being sometimes found together. At this season they are very wild, and will often fly a mile at the first flushing. They get up rather hurriedly, and when fairly started fly with great swiftness and for a considerable distance. After being put up once they prefer running or hiding to flying a second time, and will lie very close.

Ordinarily it lies well to a dog and where there is good cover its conduct in that respect is better than that of the Pinnated Grouse. But the peculiarities of its habitat do not give the dog a fair chance to work, or to do himself or the game justice. The artemisia grows only upon barren prairies from four to ten thou-

sand feet above the level of the ocean, where the soil is composed of dry sand, alkaline clay, granite rocks, etc., with little other vegetation but stunted shrubs, cactus, and an occasional clump of wild grass; where rains rarely occur and there is little moisture in the air or upon the ground. It is a tough, sprawling, crooked evergreen, or rather evergrey shrub, from six inches to six feet high, partly deciduous, in appearance much like the garden sage, and when thick very difficult for man, horse or dog to get through. Still where the plants are low and thick, and advantage can be taken of the wind, one may have capital sport over pointers and setters. For this work, however, the setter is preferable, as he suffers less from the cold and from sore feet and scratched skin.

The Sage Cock is a good skulker and runner, and not easily flushed if it can hide. It gets up heavily like the Wild Turkey, laboring hard with the wings until a proper height is reached and speed is obtained, when it sails rapidly away, and if alarmed often goes from half a mile to a mile before dropping. As it rises it utters a curious cackling note. In sections where it has not been much persecuted, the Sage Grouse is painfully tame and unsuspicious. The writer has seen a brood of a dozen well-grown birds walk innocently along before two men who were trying to shoot their heads off with rifle balls, until half their number had been killed. At each report, the poor birds would stretch up their necks and gaze about as if to find out whence the noise proceeded and would then move on toward the hills. When, however, a ball touched one of them without killing it, and it rose from the ground or fluttered, the whole flock became alarmed and took to flight at once.

The broods pass the night on the uplands, coming down to the water morning and evening, and retiring to the higher ground again without much delay. The Sage Grouse are said to spend the night upon the ground, roosting together much after the manner of the common quail.

Pediœcetes phasianellus var. *columbianus*.—Coues. Sharp-tailed Grouse, Sprig Tail, Pin Tail, White Belly.

The range of the Sharp-tailed Grouse is quite extended, for it is found from Alaska on the north to Kansas on the south, and from Michigan to the Sierra Nevadas and the Cascade Range. The

Arctic form of this species, the true *P. phasianellus* does not extend south of latitude 49 degrees, but is replaced in the United States territory by the paler more southern bird, variety *columbianus*.

The prevailing colors of the Sharp-tailed Grouse, are a clear dusky black above, and pure white beneath; upper parts variegated, with transverse, rather zigzag spots of yellowish brown; wing coverts with large rounded, and outer webs of primaries with smaller and more quadrate, spots of pure white; breast thickly covered with broad V shaped, and the sides with less numerous, sagittate marks of uniform clear slaty or dusky; legs densely feathered; throat thickly spotted with dusky; the two middle feathers of the tail one inch longer than the others.

In size, this species about equals the well known Prairie Chicken or Pinnated Grouse, and altogether it is one of our finest game birds. It lies splendidly to a dog, is strong and swift on the wing, and is surpassed by none of our birds in the delicacy and excellence of its flesh.

In addition to its table qualities, this bird is hardy and a good breeder, and we strongly advocate its introduction into localities from whence the Pinnated Grouse has been exterminated. The barrens and scrub oaks of Long Island, if the outrageous poaching which prevails there could be stopped, would be admirably adapted to the propagation of this bird; so also would certain portions of New Jersey and Pennsylvania. The lowest limit of its habitat is at present set down as latitude 41°. The time is coming when we shall have to breed our game as they do pheasants in England, or conserve it as closely as are the grouse of the British moors. The present indiscriminate netting and slaughter will soon finish the Pinnated Grouse, but the Sharp-tails have as yet escaped the pot-hunter, and it is to be hoped that before war is declared upon them, sufficient numbers can be obtained for breeding in localities where they can be protected.

In the breeding season this species is said to select some lonely place, where a covey meets every morning and runs around in a circle of about twenty feet in diameter, so that the ground is worn quite bare. If any one approaches this circle, the birds squat close to the ground, but if not alarmed by a too near approach,

they soon stretch out their necks to survey the intruder, and resume their circular course, some running to the right, and others to the left, meeting and crossing each other. The males ruffle up their feathers and circle around each other as if about to commence a furious battle, while the females make up the audience. Blood, however, is rarely or never spilled, and after a week or two of this sort of amusement, the covey separates to commence preparations for nesting. The nest of the Sharp-tailed Grouse is placed upon the ground, and consists merely of a slight hollow, lined with a few blades of grass. The eggs vary in number from ten to fifteen, and are greenish white in color, with some dots of dark olive.

An interesting fact in the history of this species, is that it seems to retire before the advance of the settlements, while its place is taken by the Pinnated Grouse. Thus in Minnesota, where formerly the White-bellies abounded, and the Prairie Chicken was unknown, the former are now becoming each year more scarce, and the latter more abundant. The Pinnated Grouse seems to follow the husbandman, and to be far less wild and untamable than the Sharp-tailed.

It is said that in entering a wheat field, the Sharp-tailed Grouse always flies, and thus cannot be trailed by a dog, but must be winded, while the Prairie Chicken always goes to feed on foot, and may thus be roaded up by a dog.

Cupidonia cupido.—Baird. Pinnated Grouse. Prairie Chicken.

No member of the Grouse family is better known than the Prairie Chicken of the Western States, and none is more numerous or more eagerly sought for by sportsmen. This species is from eighteen to twenty inches in length. Its color is blackish brown, varied above and below with tawny; the under tail coverts and vent are white, and the throat buff. The sides of the neck are ornamented with little wing-like tufts of feathers (whence the name pinnated), and beneath these are two naked bare spaces, which in the breeding season during the "tooting" of the male bird, are distended until they reach the size of an orange. The "tooting" is the call of the male bird, and is only heard during the early spring. At this season the Grouse are great fighters, dashing at each other with more display than effect, and with little

or no damage done on either side. This bird is found in open plains on which are few trees, but sometimes takes to the scrub oak for shelter. The nest is composed of grasses and leaves, built on the ground under the shelter of a bush. The eggs are brownish white, often somewhat spotted, and from ten to fifteen in number. The great increase of this description of bird is in a measure owing to the immense wheat fields which have been sown during the last ten years in the West, where they assemble in packs, and are the gleaners of the harvest.

The "prairie hen," or Pinnated Grouse, is lawful game in most of the States between the middle of August and the first of January, but the season closes in reality about the first of November, because the birds by that time have become so wild, that but few care to hunt them. But for the sportsman who does not mind working for his game, and who delights in trying his own skill and the excellence of his gun on a full-grown bird at long range, there are occasionally days on which the sport is splendid. You get up some morning and find it clear and frosty, but you know it will be warm and still for three hours during the middle of the day; so by sun up or a little later you are on some knoll on the edge of the prairie watching; you see Grouse flying everywhere, from one alone to perhaps a thousand together; they alight in the cornfields mostly, though some come down on the prairie again. Look! yonder come a dozen; they will fly right over you; no, they swerve fifty yards to one side and pass you like bullets, single out your bird, hold four feet in front of him, and when he is barely opposite, cut loose. Following the crack of the gun you hear a sharp whack as the shot strike, and you have tumbled an old cock into the grass. You have, of course, marked down as many of the birds as possible; let them feed an hour and then drive them up. They will rise very wild and the only object in flushing them is to see them down where they will take their noon-day siesta. Now you may go to the house—or more likely to your wagon—rest and get through with your lunch so as to be in the field by twelve o'clock, sharp. You go direct to where you marked some birds down in the morning. At about fifty yards ahead up spring the birds with a terrible clucking and rushing of wings. Quick! no time for parley now! cover and shoot as quickly as you can!

There, you have winged one and hurt another one that will fly out of sight and die.

If you use a muzzle-loader you will get no more shots there, but you can load a breech-loader before the few that still stick will rise. When you get these up let the dog hunt the ground for a hundred yards all around where they rose, and he will probably get you a half dozen shots at a thirty yards rise; and if your gun is good and you are any sort of a shot, you will get every one. Now go for that pack of five hundred you saw down on yonder hill-side a mile away. You get half way there when your dog, which is a hundred yards in advance, flushes one. Serves you right for not keeping him in; they won't lie to dogs now. You go a little further, when up gets one right under your feet. Hold on! you'll miss entirely or cut him to shreds if you don't give him at least twenty yards. At the crack of your gun there is a cloud of feathers and the bird has disappeared; but there goes another crossing you forty yards ahead; aim two feet ahead and you will bring him. The grass seems to be literally alive with them, and they get up faster than you can take them, till you have bagged seven or eight. You can go on till you get within three or four hundred yards of "that big pack," when they go off in a body and don't give you a shot. It is now nearly two o'clock and the birds are getting hungry again. However, if you are not too tired you can find some more scattered ones that will add a few to your bag; but after three o'clock it is useless to pursue them; besides you have now bagged ten or twelve brace and ought to be satisfied.

Iowa is probably the best shooting ground for the Pinnated Grouse, within easy reach of the East. Here this game is abundant over most of the western half of the State. From Des Moines northwest, one may stop at Grand Junction or Gowrie, north of there, or at almost any station west of Grand Junction. Going west from Des Moines, stop at Stuart, and take stage line to Fontanelle, twelve miles out, where there are excellent shooting conveniences. Twelve miles west from Stuart is Casey. Take stage from there to Fontanelle, twenty-four miles. Almost every foot of the way abounds with "Chickens," and at almost any station west of Casey good sport can be had. In most cases it will be necessary to go from four to ten miles from the railroad, as the birds are

kept "cleaned out" near the towns, but in most places a mail route, which carries passengers, extends to some country post-office. On the route northwest from Des Moines good sport is to be had after ducks about the numerous ponds, wading in the shallow water and "jumping them up." About August 20th they begin to resort to the stubble fields morning and evening, and make good shooting there. Sand hill and white cranes are also there, but very shy. The other route abounds in high, rolling ground, affording splendid views, and is absolutely free from malaria, and in almost every hollow clear pure water is found. No game there but Grouse—and rattlesnakes. There are hundreds of other places just as good as those mentioned above. The best shooting is from August 15th to September 15th. If you have a good dog by all means bring him with you. A dog that has only hunted quail and cock will frequently flush chickens, as they do not lie very well. A good ruffed grouse dog is just the thing if he will only range far enough. Breech-loaders should bring full supplies of everything except powder and shot, say 1,000 rounds for a three weeks' shoot.

Now, supposing you are snugly quartered at some farm house. After an early breakfast you take thirty or forty cartridges and start for a wheat stubble that is bordered by the open prairie. Walk about thirty yards from the edge and keep your gun ready for instant action. If the dog is not used to "Chickens" "steady" him as soon as he scents the game. The probability is that a number of the birds have been running in all directions through the stubble, and if the dog is a novice he gets confused, and will put them up. A good chicken dog always stops at the first scent and waits for the gunner to come up. If the birds are somewhat scattered they will frequently get up gradually, and by the rapid use of a breech-loader most of the pack, from six to twenty, may be bagged. If they all get up at once, try to mark them down on the open prairie, and when you see them down, be sure you mark the spot by some bunch of weeds or other object; for if you do not the grass is all so near alike that you can never find the spot after once taking your eyes off it. If there be a slough with grass in it running through the stubble, you may be almost sure of a find along its sides particularly in the evening. The birds always seem to prefer the low ground in a field. By ten o'clock the birds have

mostly filled their crops and gone to the grass and cornfields, where they remain till three in the afternoon. During the middle of the day they are hard to find, as they do not move about much. At this time of day hunt in the grass along the edge of the stubble not more than eighty rods from the edge, and along the hill-sides and on windy days always on the leeward slope. Many may be shot in the cornfields by keeping the dog well in and taking a snap shot as the bird tops the tall corn. When a large number go down in the grass they run off in every direction, and make fine trailing for the dog. They always try to alight on some spot out of sight from where they rise. They generally fly over one rise of the prairie, and stop two-thirds of the way up the next, or fly round one point and stop on the next. After a little experience one can generally tell from the lay of the land where they stopped.

No one can have any idea what Grouse shooting is in Northwest Iowa without going there. The prairie is bright and beautiful, and the breeze bracing. Although the thermometer often shows 140° in the sun, yet on the knolls you always have a delicious breeze. In the Northern and Middle States the Pinnated Grouse is nearly extinct. In 1850 there were a few on Long Island and in New Jersey. On Jersey plains the last were killed. The pot hunter finished the sport and doomed the Grouse through these regions by killing them before the law allows their being killed. In Tennessee, Kentucky, Indiana, Illinois and Ohio there are a few birds left, still, it is a hard day's work for three guns to bag forty head during the morning and evening, the middle of the day being too warm for pleasure. In the cornfields of Iowa and Minnesota hundreds of Grouse will rise in a pack during the months of November and December; and in August, September and October, when you flush a brood they either go for a cornfield or the tall grass near the water, and commence running in every direction. The Grouse is only fit for the table during the latter part of August, September, and October.

Old birds should not be shot if the sportsman can make a choice, as they are tough and stringy, far inferior for culinary purposes, to their juniors. As a general thing this Grouse selects a dry situation, and shows no disposition to travel like the Ruffed Grouse or Quail, very seldom drinking from a running stream, but

generally satisfied with a sip of the morning dew. For this reason the sportsman will be forced to carry water in a barrel in the wagon for the dogs. This Grouse, when flushed, rises with a whirring sound. Their flight is regular and swift, frequently, in October, flying several miles, then dropping down in the long grass. They fly less rapidly than the Ruffed Grouse, but like them, make a cluck just before starting. They resort to their feeding ground about daylight, and retire by the cornfields or fresh plowed fields to dust themselves, and come for their evening meal about four o'clock. They roost within a few feet of one another all the year, seldom roosting on trees, but generally taking an open field, and sometimes on the fences. In the early fall their flesh is light, but after a few frosts the flesh becomes dark, and loses its delicate flavor. Unlike the Ruffed Grouse, they can be domesticated, and will pair and breed during imprisonment, and do not migrate like the other varieties. The Grouse in the spring commences about April to "toot," and can be heard nearly a mile.

In the Southwest and especially in Texas is found a paler and somewhat smaller form of this species, which Mr. Ridgway has called variety *pallidicinctus*.

Bonasa umbellus.—Stephens. Ruffed Grouse. Partridge of the East and North. Pheasant of the South and Southwest.

The Ruffed Grouse is of all our game birds the most difficult to kill, least domestic in its habits, and most particular as to the haunts which it frequents. The range of this Grouse extends over the whole breadth of our Continent, wherever there is wooded country, northward as far as the fifty-sixth parallel, and southward to Texas. Audubon says that there are portions of South Carolina in which it never existed, and it is doubtful if it is found in the extreme southeast at all. Its flesh is white and very tender. It is said by some that their flesh is poisonous after they have eaten the leaves of the laurel *(Kalmia latifolia)*; but Audubon appears to doubt this. It is the only one of the genus that produces the "drumming" or thunder-like noise, in the localities where it exists. It is very shy, and takes wing at the slightest intrusion. Should a sportsman ever be fortunate enough to see one strutting and drumming, he would ever after remember the sight. It may

be safely said that they are not only the proudest, but the handsomest game bird on this Continent.

Doubtless, in point of flavor and delicacy, the Ruffed Grouse may be awarded the palm above all other birds of the gallinaceous tribe, but on account of its extreme wariness and the almost impenetrable nature of the grounds it frequents, its pursuit when no other game is sought is accompanied by extreme labor and fatigue, requiring likewise a thorough knowledge of its habits before even a passable bag can be made.

The wide extent of country which the Ruffed Grouse, (or, as they will call it, Pheasant, in Pennsylvania, and Partridge in New England), inhabits, causes it to be well known in almost every section of the United States, and there are few sportsmen who have not toiled and been tantalized in its pursuit. Early in April the cock grouse begins his wooing, and perched upon some fallen log, commences his amatory drumming, calling to his side the unfortunate mate whose family duties he will soon refuse to share. Unlike the quail, who assists his partner in hatching and rearing her young, the Ruffed Grouse deserts his better half after she has finished her nest and completed her laying, to seek the company and enjoy the society of just such other lazy and selfish fellows as himself; thus he leads a life of ease until his progeny have become almost as large as the mother, when the packs of grass widowers are broken up, and all mingle indiscriminately with the broods of grown birds. By the middle of May the eggs are usually all deposited. For incubation the most retired situations are chosen, such as an old stump, beneath an old log, or among small bushes and very frequently in the angle of the worm fence between the stakes. The hen lays from ten to fifteen eggs of a dark yellowish color, often dotted with minute spots of bright reddish brown; they are about the size of a bantam's egg. The nest is oftentimes robbed by the fox and crow, and other enemies that are always on the alert for a spring meal. If the eggs are destroyed the hen again seeks the company of the cock; they build a new nest and the hen lays about the same number of eggs. If the eggs of the first nest are hatched, she does not lay again until the following spring.

The young birds leave their nest almost immediately, and will

keep with the hen during the day, seeking food; if startled at any time they hide under the leaves, or in the grass like the young quail. The mother bird, during this time, is resorting to stratagem to draw the intruder away from her brood. When the brood is ten days old they have sufficient strength to fly from twenty to thirty yards, and as soon as they drop hide instantly among the dead leaves and grass. The hen is never assisted by the cock in caring for her young. The cocks club together until the latter part of August, when they all again join the hen and brood. In the latter part of March and all through April and May, in the gullies where the hemlocks and pines are the most dense, the cock grouse can be found standing upon an old moss-grown log, drumming. With this peculiar music he draws the female to his side. While drumming, his form is erect, and his feathers appear to stand upon end, grander and more delicate than the turkey cock. His head is posed over the end of his wing, within four inches of his tail. The tail is spread like an open fan, making a half-circle, showing the many beautiful tints. His ruff, which is on each side of his neck, is raised, showing the beautiful jet it contains. The delicate curve of the wing lies close to the feet, almost hiding them. See him now, as he whirls right and left, and struts upon his favorite log. In ten or fifteen minutes he closes the whole of his feathers, and of a sudden he stretches himself, beats his wing in the air close to his sides, after the manner of the dunghill cock, but more clearly and with lightning rapidity; these rapid strokes produce a sound resembling the rumbling of thunder in the distance. One may often hear it six hundred yards, and in clear weather with wind favorable it can be heard at a much greater distance. The cock, if not disturbed, will every morning drum upon the same log during the breeding season; the proof is the excrement and fine feathers that can be found at the spot. In the mating season they frequently have fierce battles. The cock has generally from two to six hens under his protection. In some parts of Ohio, Pennsylvania, Kentucky and Dakota is the best ruffed grouse shooting in the States; but this bird is found in almost every section of our country. In many places near the banks of the Mississippi and Missouri Rivers the shooting is very fair, and on the Columbia River also. All through Tennessee, Kentucky, and Virginia Ruffed

Grouse were at one time very abundant. The Ruffed Grouse derives its name from the jetty plumage upon its neck, on either side a space being left destitute of feathers, but covered over by an erectile ruff of elongated feathers, of which the upper are silky, shining, and curved forward at the end, which is very broad and rounded. His local appellations in the different States are—in the Western, pheasant; Eastern, partridge; Middle, pheasant; and Southern, ruffed grouse. In many States no one would know of what you were speaking, and in fact we have met many sportsmen that did not recognize the Ruffed Grouse by name. This species flies with great ease, and never hesitates about crossing a river or valley; like nearly all the gallinaceous order, when flushed it flies with a whirring noise, generally in a direct course from one to three hundred yards. They often, however, get up quite silently, and it is only when alarmed that the peculiar rush and rattle of their wings is heard. Being a solitary bird naturally, he is very seldom found in packs, but generally in pairs. The forest that is the most secluded and dense is his home. These birds may often be seen at a very early hour—say at eight o'clock—busying themselves scratching and dusting in the same manner as the barnyard fowls. They are very fond of buckwheat, corn, beans, grapes, strawberries and blackberries, and they often wander half a mile from the hemlocks for these delicacies. In the winter and spring they feed upon the buds of apple trees. In the severe winters they are driven to great extremes for food, and will eat chestnuts and acorns, and sometimes laurel. In the low spruce by the side of a log or stump this bird generally roosts. He invariably makes a long flight and then a short one, previous to settling for the night. When the snow lies upon the ground he settles in the lower limbs, or else in the topmost branches, where it is so thick the hunter cannot see him, and if seen the tree would be so tall that No. 8 would not disturb him. Many of the small hawks destroy the young. The mink and weasel catch the old birds, while the fox kills the young.

In winter, however, it is a rare thing for Reynard to make a meal off a full-grown ruffed grouse. The Grouse seems incapable of burying itself in the snow, while standing upon it, and invariably does so by hurling itself into it from a height, and striking it at an

acute angle, so as to project itself about two feet horizontally and eight or ten inches vertically from the point of entrance.

No matter how carefully one may approach their holes in the snow, the Grouse will be off before he is near, even though the fleecy snow gives forth no sound perceptible to human ears. In the North, one of the most formidable enemies of this species is the great horned owl, which, winging its way noiseless, and observant, on moonlight nights or in the gloaming, snatches many a savory meal from out of the trees and under the overhanging branches.

A good grouse dog is a rarity; he should be thoroughly up to his work, long accustomed to it, staunch, careful, and satisfied with a point the instant he catches scent. The fast ranging, busy youngster, no matter how fine he may be on other game, had better be left at home, for he will certainly do more damage than good.

All experienced sportsmen know how seldom it is that we meet with a good snipe dog. Those only are good which have been raised and broken on that game, and thus it is with dogs to be worked on the Ruffed Grouse. A dog, in order to understand and work properly on this game, must be broken specially for the purpose, and such dogs, instead of dashing over the ground with a regular beat, at a high rate of speed, as soon as they enter the cover will settle down to slow, cautious work, frequently using their eyes to spy out the spots where the Grouse generally lie, and then getting themselves quietly to leeward, will approach very cautiously with their noses to the wind, stopping the instant they get the faintest scent of the game; and then, as there is a perfect understanding between the shooter and his dog, the former is enabled to get in position to shoot in case the bird will not lie to point, as is often the case. At the first rise, when the bird starts before the sportsman can get within shot, or it is missed, its course should be marked with accuracy by the shooter. In the East, the Ruffed Grouse are extremely wary, and it is a good thing that they are so, for if they were not, they would only be found in private collections and museums. It requires a great deal of perseverance on the part of the sportsman to make a decent bag. Sometimes when come upon suddenly, they squat and lie close for the dog, but far more frequently they will not admit of approach and make off at the first intimation of danger, run-

ning and taking wing to some tree where they remain closely concealed under the branches near the butt, until the sportsman has passed. When the Ruffed Grouse is young, however, they lie better, but at all times silence should be observed when the near proximity of game is suspected, as it will more readily bear the approach of the dog than the sound of the human voice, or the noisy footstep of the shooter. The most favorite resorts of the Grouse are the sides of hills overgrown with hemlock and cedar, with undergrowth of laurel. In level countries they frequent swampy coverts and scrub oak patches, and if such places have a briery bottom, they will lie all the better, as this impedes their running.

When a Grouse is put up at the foot of a hill he will most likely ascend it in his flight, and if not alighting on its side, can generally be found directly over the summit, and will lie better and give a closer shot than when first disturbed. One may usually have some success when he can find a swamp or thicket at the base of a mountain to which the birds come in the morning to feed, and posting yourself between the hill and their feeding place, while a companion starts the Grouse, may obtain fair shots as they pass near.

Fully two-thirds of the Ruffed Grouse we see in the markets are either snared, trapped or killed by professionals, who tree them by the aid of small dogs trained for the purpose; and while the poor bird is gazing at what he most probably takes for a fox beneath him, the pot-hunter murders him as he sits.

In many localities we may now walk for hours through the most attractive covers, where Grouse were once abundant, and see nothing, hear nothing of the noble bird. The familiar drumming, the sudden whirr and flash of wings as he passes swiftly before us, and is lost in the leafy mazes of the glade, all gone; nothing remains to tell that this splendid game was once a denizen of the forest, save the broken brush fence with its deceptive opening. One to whom forest nature is dear, cannot but be painfully affected by such scenes. It should be made a felony to capture with snares any of our game birds.

The Ruffed Grouse often takes refuge from the sportsman amidst the thickest cripples, deepest gullies and densest foliage,

where it is impossible to get at them, remaining perfectly still until the danger is over. When the birds are scarce one must be lively to bring them to bag. When started on a hill they fly for its base, and then turn usually to the right or left very short, and very few sportsmen understand their flight.

In the far West they lie much better in the early part of September, but in New England they lie best in December. The flesh of this bird is tender and delicious, though much of its excellence depends upon the cooking. Of course, if the cook is not scientific the delicacy is lost. You can make it tough and dry, or juicy. If the nets and nooses, traps and pot-hunters were attended to in the early season, this bird would be very soon abundant in every State.

The human voice will often cause this species to rise at the distance of one hundred yards. We have known a single word to flush a brood. On their feeding grounds they act very like the woodcock. When preparing for his flight, the bird generally walks from six to ten feet, very erect and stately, with his tail spread fan-like, and in an instant he is off with a whirr one does not forget. Though generally difficult to approach, they will sometimes lie very close, and then rise almost from under your feet. Their flight is from one hundred and fifty to two hundred and fifty yards. One very singular fact is, that you seldom find the brood two days successively in the same neighborhood. It is the most difficult of all the game birds to kill, often dropping dead after an extended flight, and when wounded it is difficult to find, hiding in holes and hollow tree trunks, and frequently baffling the best retrievers and the patience of the most persevering sportsman. None but those who have a steady nerve, quick eye, and good judgment of distances, will ever be able to make a large bag. This species is sometimes hunted with Cockers instead of setters, and we believe with most satisfactory results.

What a pity it is that we have not distinctive popular names of our native game birds. The Ruffed Grouse is called "Partridge" in New England and New York, and "Pheasant" in the Middle, Western and Southern States. Our choice little Bob White, who, in spite of all his enemies, will remain and increase as cultivation widens, for he loves the field better than the forest, is called

"Quail" in the northeast and "Quail" and "Partridge" indiscriminately in other portions of the country; and yet each are entirely different from the pheasant, partridge and quail of Europe. To be understood, we are obliged to describe each with an *alias*, and after all be incorrect, and sure to mislead a foreigner. It is probably too late to remedy this confusion.

The Rocky Mountain form of the Ruffed Grouse has been distinguished from the Eastern bird, under the varietal name *umbelloides*; it is somewhat greyer than the common form, but is otherwise similar. The bird of the Pacific Coast is redder again, and is called variety *sabinei*. The different forms, however, grade into one another, and the differences are often extremely slight.

Lagopus albus.—Audubon. Ptarmigan, Willow Grouse, Partridge of Newfoundland.

The various species of Ptarmigan are all alpine birds, and are only found in the North, and on the highest mountain ranges. They are to be distinguished from all our other members of the Grouse family, by the dense feathering of the tarsus and toes, by turning white in winter, and by the possession of only fourteen rectrices or tail feathers. The bill of this species is very stout; the tail is always black. In summer, the foreparts are rich chestnut or orange brown, variegated with blackish, the upper parts and sides are barred with black, tawny and white, other parts are mostly white. Its length is about sixteen inches. This species is confined almost entirely to the British Possessions, although a few are found in winter in the northernmost counties of Maine, New Hampshire, Vermont and New York. The Ptarmigan is quite equal as a game bird to the Scotch Grouse, and indeed resembles it so closely, that it is difficult to make out any specific difference between the red grouse, gorcock, or moorcock of Scotland, and the ptarmigan of this country. They are a most delicious article of food, whether roasted, stewed, or in white soups. All visitors to Newfoundland admit that the flavor of a plump partridge, well cooked, is unsurpassed in richness and delicacy. They are of respectable proportions, a brace of them in season weighing from three pounds to three pounds and a half. When the sporting season opens on the first of September, they are in prime condition, after feeding on

the wild berries, the partridge berry and cranberry being their favorite food.

They are to be found in all parts of the island, but the bare highlands, where they are covered with berry-bearing plants, are their favorite localities. In clear weather they are found about the skirts of the woods and in the tucking bushes, and are then very wild and difficult to reach. When the weather is foggy, however, they come out on the barrens and marshes, and are then very tame, merely flying a few yards even when shot at, before they alight again. It is quite customary there to despatch a box of partridges in a frozen state to friends in Scotland and England about Christmas; and a most acceptable present they prove. Owing to the great number of sportsmen who go in pursuit of the partridges, they are becoming every year scarcer in the neighborhood of St. Johns, and to get a thoroughly good day's shooting it is necessary to travel many miles.

In certain localities they are very abundant, and to the sportsman there can be nothing finer than a day's partridge-shooting over the breezy "barrens" of Newfoundland during the fine autumn weather. The air is then cool and exhilarating, and the bright skies, the weird and charming scenery, varied by countless lakes; the low, rounded hills, covered to the summit with the tapering firs; the lakelets bright with the white and yellow water lilies; the woods assuming everywhere the golden tints of autumn, the wild flowers still abundant, the bold headlands along the coast through whose summits glimpses of the restless Atlantic are obtained—all these, with the excitement of the sport, combine to furnish to the lover of nature a day of rapturous enjoyment. It is a thrilling moment to the genuine sportsman when, gun in hand and dog at foot, he finds himself among the partridge coverts. His faithful Rover scents the game; every nerve in his frame quivers as step by step he thoughtfully and cautiously advances toward the unseen covey: then suddenly pausing, with one fore paw balanced lightly, and every limb and muscle rigid as iron, the beautiful animal is at once transformed into a marble statue. Presently a whirr is heard, and with a loud "ca, ca, ca," a magnificent old cock rises on the wing. Crack goes the gun and down tumbles the great bird, the scarlet tips over his eyes glistening like rubies,

as with a thud that gladdens the sportsman's heart, he strikes the earth. Or perhaps a whole family—father, mother and children—rise at once, and the double barrels bang at them right and left, bringing down two or three brace. At times a late covey is started the chickens of which are only two or three weeks old, just able to run smartly along the ground. It is a touching sight then to see the cock fearlessly exposing himself to save the lives of his offspring. He tumbles along the ground a few yards in advance of the dogs, rolling there in order to decoy the sportsman from the brood which the hen is anxiously calling into the thicket. No more touching instance of paternal affection could be witnessed; no more touching proof among the lower creation of self-sacrifice, prompted by love. The poor feeble bird would almost attack dogs and men in his efforts to save his children. No true sportsman would harm a bird under such circumstances. Only a brute would fire upon it. The dogs are called off, and father and mother Ptarmigan are soon rejoicing over their rescued family.

After a day's sport over the hills a supper of roast ptarmigan, with wild strawberry tart as an accompaniment, is "a feast fit for the gods." When the frost sets in, the brownish grey of the Ptarmigan's plumage gradually disappears, as in the Alpine hare, and at length when the snow falls it is almost pure white. One peculiarity, however, in the Newfoundland bird is, that the middle pair of tail coverts is rarely found entirely white in winter. These remarkable changes, effected as in the northern hare without loss of substance, fit it admirably for its situation; as the sportsman, if he have not a dog used to the game, may also walk over the bird without putting it up. It is feathered and haired down the legs and between the toes, and may be distinguished at a considerable distance by the red about the eye. These birds are widely diffused over the island and it is no uncommon thing for a sportsman to bag in a day from a dozen to twenty brace.

The food of the Ptarmigan consists chiefly of the buds and tender shoots of birch, alder, black spruce, juniper, etc., but in the berry season they feast on partridge berries and cranberries. They almost invariably roost on the ground, but are often shot feeding on the tops of birch and alder trees.

At times, in some districts, they are so tame that they can be

killed with a stick, and at others so wild that they will not allow you to approach within gun shot, and such is generally the case in winter, when the snow is hard and crusty, and the noise made in approaching them alarms them. They are shot at all times by the population in the more distant districts, but a close time is now fixed by law, which will have a good effect where the law can be enforced.

Lagopus rupestris.—Leach. Rock Ptarmigan. Mountain Ptarmigan.

This species is still more boreal in its habitat than the preceding and but little is known concerning it. In size it is somewhat less than the Willow Grouse and its bill is more slender. The tail is black. The male has at all seasons a black stripe running through the eye. The summer plumage is irregular banded with black, yellow and white. This species is never found within the limits of the United States. In winter however it is found in Labrador along the coast on the hills from which the wind has swept the snow; here it feeds on maples and lichens, and on the few twigs and buds that are to be found. In Newfoundland it is quite rare and is seldom found below the line of stunted black spruce except in the depths of winter, when they descend to the low lands and feed on the buds of dwarf trees, sometimes in company with the Willow Grouse. The settlers here call this the "mountain partridge."

This species is said to occur in Melville Peninsula and in the Barren Grounds, rarely going even in winter south of latitude 63° in the interior though passing much farther to the southward along the shores of Hudson's Bay. It is said to breed in the open country, differing in this respect from the Willow Grouse, which nests in the wooded land.

Lagopus leucurus.—Swainson. White-tailed Ptarmigan. White Quail.

The White-tailed Ptarmigan may be distinguished from all others of the genus by having the tail white at all seasons. It is the smallest of our Ptarmigan, and it is the only one of regular occurrence within the territory of the United States. In winter this species is pure white throughout, but the summer plumage is curiously mottled with dark brown and tawny and white; the eye

is hazel, the superciliary membrane, red; toes, feathered half their length in summer, and entirely covered with hair-like feathers in the winter; claws blackish—lighter at their tips, long, broad and strong, rounded above, concave beneath, arched, edges sharp, and in some individuals the claws are notched on the sides.

This species is found only on the highest peaks of the Rocky Mountains. During the summer months they are found in pairs near the snow banks on the bare tops of the mountains. Their nests are generally placed in some little cavity among the loose rocks, and are constructed of dried grasses. Their nests are small and scantily built, merely a little hollow in the ground lined with a few blades of grass and perhaps a feather or two from the mother's breast. The eggs are probably from eight to twelve in number, though about this there seems to be some doubt. In all likelihood, however, this bird does not differ materially from the other members of its family in the number of young which it rears. When with its young, this species makes valiant fight against any enemy which ventures to attack its family, flying so near as to hit one with their wings, in their endeavors to protect their chickens. Both male and female are equally courageous, and will defend their young. In the summer they are very tame, and when approached will run among the rocks or in the dwarf willows, a few yards from the hunter, and squat and will not continue their retreat until the hunter is upon them. When started they fly in a straight line for seventy-five or a hundred yards, and alight on some elevated rock, stretching out the neck its full length to see if they are followed, and if nothing is seen to excite their suspicion, they walk off from the rocks and commence to feed as usual. During deep snows in the winter the Ptarmigan descend from the mountains and feed in the edges of the timber and on the hill sides.

This species goes through a continued moult which lasts during the summer months, and the variation in their plumage is so great that it is almost impossible to find two individuals in the same dress. During the months from April to September their plumage is very scant and ragged; but when in their full winter plumage their feathers are heavy and compact, which gives them a much larger appearance than when seen in the summer dress, mottled with brown and greyish white. They are generally known in Colorado

as White and Mountain Quails by the hunters, miners and ranchmen. The White-tailed Ptarmigan, though the least in size, is one of the most beautiful of our grouse, but as it nowhere exists in sufficient numbers to repay the sportsman for hunting it systematically, it will probably continue to be little known to any excepting the naturalist.

QUAIL.

THE Continent of America is amply provided with gallinaceous birds, and these are found here, not only in unusual numbers as regards species, genera and families, but also in the greatest variety as to size, delicacy of flavor and the game qualities so highly prized by the sportsman. From the Wild Turkey, weighing perhaps twenty-five pounds, to the little Quail which turns the scale at a few ounces, is certainly a long step, and between the two we have nine species of Grouse and over forty species of the *Odontophorinæ*, the sub-family to which the Quails belong. The latter, it is true, are by no means all inhabitants of the United States, having by far their greatest development in Mexico and in Central and South America. Still, three at least of these Southern species are found to the north of the Rio Grande, and are properly to be included within the limits of this chapter. Besides these, there are the Mountain and the Valley Quail of California, the former sometimes found at an elevation of over six thousand feet, and last but by far the most highly esteemed by the brotherhood of sportsmen, our own little Bob White. This bird is the only one of all those above mentioned which lies well to a dog. The western and south-western species have not as yet been educated up to this point; they all prefer to run, after having once been flushed, and as they choose the most impenetrable thickets of chapparal and mesquite through which to pass, it is often quite impossible to start them from the ground a second time. The species belonging to the sub-family *Odontophorinæ* which are found within the limits of the United States are as follows:

Ortyx virginianus.—Bon. Quail (of the North); Partridge (of the South); Bob White.

Inhabits the Eastern United States to the high central plains; introduced, and doing well in Utah. Description; feathers of the

crown somewhat lengthened, and capable of being erected into a slight crest; forehead, a line over the eye and the throat white bordered with black; crown, neck and front of breast brownish red, other under parts white marked with crescentic black bars; sides streaked with brownish red, upper parts varied with chestnut, black, grey and tawny. In the female the forehead, throat and line over the eye are buff instead of white, and her colors throughout are somewhat paler than those of the male; she is also a little smaller than the male. The ordinary Quail of Florida is regarded by most competent authorities as a variety of the Quail of the north. It is smaller and its colors are darker, approaching the Cuban form *Ortyx cubanensis*. Dr. Coues has named it var. *Floridanus*. Variety *texanus*, Lawrence, is about the size of *Floridanus* but is even paler and greyer than our northern bird. It is the common Quail of Texas.

Oreortyx pictus.—Baird. Mountain Quail of California.

This is a beautiful species, the largest Quail known to the United States, being quite a foot long. The wings and tail and the posterior half of the body above are rich olive brown, some of the inner quills being edged with white on the inside. The posterior half of the body below is purplish chestnut barred with white, black and tawny; fore part of body a rich slate blue; chin and throat purplish chestnut. A long crest, consisting of two slender keeled feathers which rise from the crown, sometimes attains a length of three or four inches in the male. This beautiful species inhabits the mountain regions of Oregon and California, and is never, we believe, found on the low lands. They will usually run before a dog, are only flushed with much trouble, and often take to the trees after being started.

Lophortyx californica.—Bon. Valley Quail, Meadow Quail.

The Valley Quail, as its name implies, is a lowland species, and is rarely found high up on the mountain sides. It is smaller than the preceding, but its plumage is no less beautiful. Its head is adorned with a fine crest of from six to ten keeled clubbed black feathers, sometimes an inch in length, and bent forward, giving to the bird a very jaunty air. Male with a small white line from bill

to eye; forehead whitish with black lines; occiput smoky brown; nuchal and cervical feathers with very dull edgings and shaft lines, and fine whitish speckling; general color of upper parts ashy with strong olive brown gloss, the edging of the inner quills brownish orange; fore breast slaty blue; under parts tawny, deepening centrally into rich golden brown or orange chestnut, all the feathers sharply edged with jet black; sides like the back with sharp white stripes; vent, flanks and crissum tawny with dark stripes. Besides lacking the definite head markings, the female wants the rich sienna color of the under parts which are whitish or tawny, with black semicircles as in the male; the breast is olive grey. In size this species about equals our Bob White.

The California Quail is usually found in large flocks, sometimes containing hundreds of birds. They frequent hill-sides and wooded gulches or *arroyos*, where such are to be found, and the dense masses of chapparal which affords them cover. In cultivated districts they are to be found near or in vineyards and occasionally in wheat-fields. Unlike their Eastern brethren, who appear to squat on the ground at night, they roost in the thick and almost impenetrable cover of a scrub oak or thorn bush. Setting aside the fact of the birds being so much more numerous, the shooting, owing to the openness of the ground, is much more difficult than in the East. California is, comparatively speaking, destitute of wood except on almost inaccessible mountain sides, and cañons. The birds, in the fall of the year after the different broods have packed, are found on the plains, where they feed on the seeds of the *alfilleria* and burr clover. When driven to cover and scattered they begin almost immediately to call with a whistle not unlike, though more prolonged, than that of our bird.

Lophortyx gambeli.—Nuttall. Gambel's Partridge, Arizona Quail.

This species, which somewhat resembles the Valley Quail just referred to, is confined to a portion of our south-western territory, bounded on the north by the thirty-fifth parallel of latitude, on the east by the Pecos River, and on the west by the Colorado; southward, its ranges extend into Mexico. It is most abundant in New Mexico and Arizona, and is found in equal numbers on the parched deserts and the rocky mountain sides.

The male lacks the white basal line of the Valley Quail: "forehead black with whitish lines; occiput chestnut; nuchal and cervical feathers with dark shaft lines, but few dark edging or none, and no white specklings; general color of upper parts clear ash, the edging of the inner quills white; forebreast like the back; under parts whitish, middle of belly with a large jet black patch; sides rich purplish chestnut, with sharp white stripes; vent, flanks and crissum white with dusky streaks. Besides lacking the definite head markings, the female wants the black abdominal area, where the feathers are whitish with dark lengthwise touches."

Callipepla squamata.—Gray. Scaled Partridge, Blue Quail.

The Blue Quail, like all the other western and south-western species with which we have to do, prefers to trust for safety to its powers of running, rather than those of flight. Indeed there is no difficulty whatever in getting pot shots at any of these uneducated birds, the great trouble being to start them from the ground. This species is about the size of our eastern quail, but differs widely from it in color. It has a short full crest, is greyish blue above, paler below, the sides striped with white, and the whole plumage marked with semicircular black edgings of the feathers, which give it a scaled appearance; the inner edges of the inner quills, and the end of the crest are white. The under tail coverts reddish brown with dark streaks. The Blue Quail is found very abundantly in Texas, New Mexico, Arizona, and to the southward.

Cyrtonyx massena.—Gould. Massena Quail.

This most beautiful species is also by far the most gentle and unsuspicious of our Quails, and will permit a very close approach by man, showing little or no fear of what most animals know so well to be their most deadly enemy. While feeding, the Massena Quail keep close together, and constantly utter a soft clucking note as though talking to one another.

This species is about the size of our Quail of the East. Its head is ornamented with a beautifully full soft occipital crest. The head of the male is singularly striped with black and white; the upper parts are varied with black, white and tawny, and with paired black spots on the wings. The under parts are velvety

black, purplish chestnut along the middle line, and with numerous circular white spots. The female is smaller, and is quite different in color, but may be recognized by the generic characters. The tail is short and full, and the claws very large.

The following remarks apply altogether to the Common Quail, the typical game bird of North America. The Quail breeds in almost every State in the Union, and there is a diversity of opinion among naturalists and sportsmen, whether it regularly hatches two broods a year. Both sides have strong advocates, but the matter is probably entirely dependent upon the character of season and climate. In latitudes where spring and summer are short, very likely but one is raised as a rule; but in more southern sections, probably two are often reared. If the parent birds are successful in the hatching period, and the nest and young have not been destroyed, they remain with the brood and do not hatch a second; but on the other hand, if any mishap befalls their eggs or young in early summer, undoubtedly the hen begins another nest and hatches again. This may account for the great diversity in the size of Quail in different coveys we so often notice in Maryland, Delaware and Virginia. As late as the middle of November the writer has found them too young to be killed, plainly showing that they were brought forth late in the summer, and it is always to be observed that a great number of half-grown coveys are seen in seasons which follow wet and cold springs.

The Quail makes a simple nest on the ground, under the edge of some old log, or in the thick grass on the prairie, lined with soft and well dried grass and a few feathers.

The female lays from fifteen to twenty-four eggs, white as hens' eggs and shaped much like them, only a little more blunt at one end, and a little more peaked at the other. She sits three weeks, and so far as our observation goes, hatches nearly all the eggs, be they more or less than twenty. The young brood, as soon as they are fairly out of the shell, leave the nest, and seem abundantly strong to follow the parent, though they are no bigger than the end of your thumb—covered with down. They follow as chickens do, and the moment the old bird sounds an alarm, they instantly scatter in all directions and hide from observation and remain hidden till the voice of the parent announces the prudence of coming forth.

When a dog approaches a young family of Quails, the note of alarm is sounded, and the mother bird feigning to be wounded, flutters just before the dog, but is careful to keep out of reach, but she usually succeeds in taking the dog a long way from her brood, when by a circuitous route she returns and gathers together the scared fugitives, and proceeds to hunt for food for her growing family.

They are both grain and insect eating birds, and occasionally indulge in a dessert of berries. They are very much averse to becoming domesticated, yet they come around the house and outbuildings in search of food. We have seen a statement that sometimes, when hatched out by hens, they would run with her and winter with the barnyard fowls, but would invariably leave in the spring, under the irrepressible instincts of their nature, implanted by its Creator.

Eggs of the hen have been placed under the Quail and hatched by her, and in one instance, at least, the chickens ran with the Quail till they were larger than the Quail. They were then lost sight of—were probably caught by hawks, or some wild animal whose epicurean tastes were partial to birds. Though they raise many young, the ravages of the remorseless hunters and the money-loving trappers, together with hard winters and deep snows long continued, thin out their ranks continually. They are a remarkably plump bird, and their flesh furnishes delicate morsels to the fastidious lover of wild game.

In the summer when his mate is sitting, and in the early fall the Quail sits on the fence or a low tree, and whistles Bob White for an hour at a time. They have quite a variety of notes, which they utter when several of them meet, as if in social converse, are pleasant and agreeable companions, and decidedly the farmers' friends, for they eat quantities of those dreaded chinch bugs, whose little suckers lay waste our wheat fields. No sport is more delightful than Quail shooting, and there is only one legitimate method by which this bird can be taken; that is over dogs. It is, too, one of the most healthful of all our field sports, as it can only be indulged in after the heat of the summer has passed, and when man needs the bracing and life-giving influence of the pure frosty air for the purpose of recuperating his exhausted system.

Quail, as every sportsman is aware, are formed into coveys, and in some parts of the country, are large enough to shoot early in October, but most of the States have, by legislative enactment, prohibited the shooting of them until the first of November. They are to be found in almost every State of the Union, but are most eagerly sought after in the Middle and Southern States, especially in Delaware, Maryland and Virginia, where immense numbers of them are killed every year.

Quail are almost everywhere protected by law at certain seasons, but there is a wide difference in the dates at which the close seasons begin and end in the various States of the Union. We can have no better law in regard to the quail than the present one of Pennsylvania, which protects them from January 1st until November; but in Kent county, Delaware, quail shooting is tolerated until February 15th, and certainly nothing could be more damaging to the increase and preservation of the bird, especially if deep snows cover the ground after the first of the year, and shooting continues. All persecution at this time should cease, and the quail be allowed to seek what little food there is for them during such periods. In Maryland October 20th is given as the opening day for the sportsman, which is almost two weeks sooner than it should be.

In fair weather, the favorite feeding ground of the Quail is on the wheat stubble, especially if it be grown up with "rag weed," and generally not far from a brook or slough, if there be one in the field. During the middle of the day he will be found along the fences of the stubble fields, if there be blackberry or other bushes for cover; also on newly cleared land that has never been cultivated. In rainy weather they take to the bushes and remain there all day, and if possible elude pursuit by running. Frequently the sportsman has to follow a covey for a quarter of a mile before he can get near enough to flush them. Also, in snowy weather they go to the timber, but in a day or two after the storm come back to the fields again. After there has been sunshine sufficient to melt the snow from the northern banks of the brooks, if the weather turn cold and clear, every covey that rises in that vicinity will be found sunning themselves on the banks which are bare of snow. We recently found four large coveys within as many hundred yards along a small brook, when on ordinary occasions that would be considered

a good half-day's find. When a covey has been flushed and gone down, if there be thick weeds or grass, they will hide at once, and are easily found by the dog. If they come down near piles of brush they are almost sure to run into them, but a kick or two will generally get them out. If they fly to thick bushes they will probably run together, and get away as fast as they can run, and it is a singular fact that a dog which had no difficulty in trailing them before they were put up will be totally unable to do it now, and so it is useless to follow them unless there is snow, and even then it is doubtful if you get a shot, for they will travel faster through the brush than you can follow. Possibly it is generally known to sportsmen that quail will double under such circumstances like a hare, but this trait has been noted repeatedly. We have also noticed that a dog can smell but very little when the weather is cold and the ground covered with fine dry snow. In fact a dog is at a disadvantage, if not thoroughly broken. If a covey be flushed, and on coming down one of them gives a call or two, you may look for them to fly again almost immediately. They occasionally do this when they happen to come down where the cover does not suit them. In the early part of the season one can frequently learn where the scattered ones are by imitating their call, which every one can do with a little practice. Later in the season this will not succeed till near sundown. In Florida the quail are very frequently found in gardens or clearings along the borders of palmetto scrub. If the garden or field be fenced, let the dog and one gunner take the field, and another gunner work the outside, taking the birds as they fly over into the scrub. Once in this cover they are safe, for neither dog, man, nor double-plated pachydermata can follow them.

The early days of the season are not so good, for shooting, as a month later; for, after being shot into a few times, the coveys become shy and wild and take to the woods, where they find plenty of food, such as acorns, etc., and resort to the stubble fields only very early in the morning and late in the afternoon; and during the intervening part of the day, especially if the weather is warm, they are generally scattered along the banks of water-courses or branches of creeks which run through the woods. As the season advances, towards the first and middle of December, when the

ground is frozen, and food becomes scarce in the woods, they resort more to the open stubble fields in search of grain, and, when flushed, generally scatter among the high grass, or along some old ditch-bank overgrown with brier bushes, and will lie well to the dogs, and, in many instances, nearly an entire covey may be picked up singly by a good shot, if he has a firm, staunch dog, who is not too eager, but will carefully hunt over the whole ground. When a covey is first flushed, they should be carefully marked when they settle, and the shooter need be in no particular hurry to follow them if they are in good cover, as they have been supposed to have the faculty of withholding their scent, so that the best dogs are very often at fault. Dr. Lewis, in his "American Sportsman," speaks of this supposed power, and publishes a letter of Dr. Samuel Smith, of Baltimore, in which the Doctor says that many noble dogs have been censured for carelessness, when it was manifest that the fault did not lie with them, but that this power was given to the birds by their Creator to preserve them from their ruthless destroyers.

Even Wilson, the great ornithologist, never gave this matter sufficient study, as the Doctor mentions the fact of being in his company upon one occasion, when a well appointed party of gentlemen were shooting "partridges" in a stubble field adjoining a woods, where he and Wilson were gathering specimens. He says: "The stubble field in which this party was shooting, had small patches of briers and low bushes in several places. From one of these was flushed a very large covey of partridges, which, after having been vigorously fired upon, settled nearly in the centre of the field, in a place slightly depressed, where the stubble was unusually high, with rank clover underneath. The sportsmen pursued with due caution, giving the proper instructions and ample time to the dogs. Some of the birds were put up and killed, but not near as many as had taken refuge there. After considerable search the party left the ground. Why so few birds were roused puzzled me exceedingly, and I, in common with every one, censured the dogs. On our return from the woods, where Mr. Wilson had been watching and studying the habits of some small birds, we crossed the stubble directly past the spot where the partridges had been hunted by the sportsmen. As we approached it

a bird flew up, and soon after, another and another, until five went off. I expressed my surprise to Mr. Wilson, who dismissed the matter by supposing that the stronger scent from the feet of so many men had transcended that of the birds, and bewildered the dogs."

After starting a covey, and scattering the birds, no doubt every observant sportsman has noticed the same thing, namely, how difficult it has been for his dog to find the single quail, although directly marked to a particular spot. This habit of the bird to lie until almost trodden upon, and to seemingly baffle the nose of the finest setter or pointer, has given rise to the question whether it can *voluntarily* withhold its scent, but there is no reason for attributing to it such powers, and it is readily to be explained. After being flushed and shot at, the covey, in its flight, scatters in every direction, making all haste to escape from danger, and each quail pitches into whatever cover offers the best concealment—crouching into the smallest possible space, with feathers pressed tightly to its body, permitting little if any scent to pass off for a time, or at least until they move and suppose danger has passed. Thus it is not a will power on the part of the bird, but resulting entirely from the body (from whence their scent issues,) being so firmly pressed by the quail with its plumage in its endeavors to hide.

The Quail is most unquestionably to be preferred to any other bird to break our dogs on; and when once broken to this kind of shooting, they will seek after and find any other game bird, such as woodcock, snipe, pheasant, or grouse, as no bird feeds more widely nor leaves so long a trail of scent behind them, which, when the wind is blowing strong, is carried a considerable distance. We have frequently seen dogs catch the scent of a covey a hundred yards off, and trail them straight to their hiding place. They thus learn caution and ease in approaching them, knowing the punishment they will receive if they flush. How beautifully Gay has described this in his "Rural Sports:"

> "Against the wind he takes his prudent way,
> While the strong gale directs him to the prey;
> Now the warm scent assures the covey near;
> He treads with caution and he points with fear."

Old birds are up to all manner of tricks, and are extremely cautious, and very often will not lie to the dog; they run away as soon as they observe his approach, and frequently fly up before the dogs get within fifty or a hundred yards of them, and take immediately to the thick cripples, or disappear over the tops of the highest trees; and, often when they are hit hard, will carry off several pellets of shot, if not struck in some vital part, and, with a broken wing, will run so fast as to escape the dog and huntsman.

About the beginning of October, Quail frequently abandon the high ground where they are hatched and reared, and resort in large numbers to the river banks and other water courses, and about the first of November return to their old haunts. This is called their running season, and at this period they will not lie to the dog, and to follow them is so much lost time, as it is impossible to keep up with them. Hundreds of birds are often found in these companies, and they very seldom fly, but run as fast as a dog, and scatter through the brier bushes and thick undergrowth, where it is impossible for the dogs to follow them. The cause of these movements has never been satisfactorily explained. Some attribute it to a scarcity of food, but that cannot be the cause, as they return again to their old haunts after the lapse of a few weeks.

In clear, frosty weather Quail will be found in stubble-fields, or even in corn-fields, if they lie contiguous to a wood, and also in buckwheat patches, as they are very partial to this kind of grain, and prefer it to all others. They generally feed until about eleven o'clock in the morning, and then resort to some quiet nook along the banks of a stream, or lie under the sunny side of the trunk of a fallen tree, where they scratch and preen themselves. It is about as well for the sportsman, during this part of the day, to rest from his labors, and refresh himself and his dogs. The time so occupied will not be wasted, as, after a couple of hours of rest, both himself and his dogs will be in better condition for work; and even if he retraces his steps over the ground where he hunted in the morning, he will often find fresh coveys of birds, and those which he has shot into in the morning will have had time to collect together, and will often be found scattered over the stubble peacefully feeding.

Quail invariably roost in the open fields, but not on their feeding grounds, as the treacherous trail which they leave would soon be discovered, and followed up by the dogs; but after having fed until dark, they take a short flight to an adjoining field, and drop suddenly down—avoid running about, and settle themselves for the night. To prevent surprise, and, no doubt, for better security, they roost in a circle, with their heads out, so as to present a guard on every side, and, when flushed, each is thus enabled to rise and fly without interfering with the other. If undisturbed, they will resort to the same field several nights in succession.

Most sportsmen use for Quail shooting No. 8 shot, which we regard as two sizes too large, unless the birds are very wild. One ounce or one and an eighth ounces of No. 10, with three drachms of powder, will, we believe, taking the season through, kill more birds, and kill them cleaner than any other charge; this for an ordinary seven or eight pound gun.

Man is not the only enemy the Quail has to fear, as there are several animals that feast and prey upon these birds, such as weasels, foxes, raccoons and serpents, but none are more destructive than hawks. They keep them in a constant state of fear, as they give no warning of their approach, but skim along the top of the stubble or grass, and pounce upon a covey of these weak, inoffensive little creatures, and sinking their sharp talons into their bodies, bear them off to their haunts in the woods, and devour them at their leisure. We invariably make it a rule to kill these pirates whenever and wherever we can come up with them. They not only destroy the birds, but keep them in such a constant state of alarm, that they will not lie to the dogs, but run and flush to the least alarm, and after they are scattered, they are afraid to call each other together, as the treacherous call-note would betray them to their enemies.

PLOVER.

THE family of plovers *Charadriidæ*, includes perhaps six species familiar to our eastern and central sportsman, and two peculiarly western varieties. We shall take them in their ornithological arrangement. The first we meet is:

Squatarola helvetica.—Brehm. Black-bellied Plover. Bullhead. Ox-eye. Bottlehead.

This species is not uncommon on our coast and on the plains of the Western States and indeed is found all over the world. A cursory description is as follows: Face and under parts black, upper portions variegated with black, white and ashy, tail barred with black and white. Young, below white shaded with grey, throat and breast spotted with dusky, above blackish, speckled with white and yellowish, the rump white with dark bars, legs dull blue. Owing to the great difference in plumage at different seasons, many confound the above with the familiar Golden Plover, the two being often found in the same localities. They are however, to all familiar with both, quite distinct and not liable to be confused.

Charadrius fulvus, var. *virginicus*.—Coues. Golden Plover. Whistling Plover. Frost bird. Bull head.

North America, migratory, abundant in the United States, is a smaller bird than the last but is equally prized for the table. It is found in Illinois in immense flocks in the fall of the year, where it feeds on the prairie and sandbars in the rivers. This is a fine game bird, confined neither to the interior nor to the coast alone. Colors about as follows: Plumage speckled above; in nesting season black below as in the last, many of the spots bright yellow, hence the name Golden; rump and upper tail coverts like the back, forehead and line over the eye white, tail greyish brown with imperfect white or ashy bars, in the fall only similar to *helvetica*. No bird

on our list seems to be more generally known, for it is scattered apparently over the whole face of the land—from the far countries to the gulf, and from ocean to ocean. Though not numerous in the older States of the East, probably from the greater scarcity of its principal fare, the grasshopper, throughout the unlimited tracts of prairie, plain and pasture of the Western States as far as the Rocky Mountains, it is found in countless thousands, more particularly during its pilgrimages to its breeding grounds in the north.

In Kansas, Nebraska, and the wide extent of plain west of the Mississippi, where the grasshopper becomes a scourge to the restless pioneer, these birds are at home. Here they can be found in all their glory; here, until the eye wearies with the monotony, their well-filled battalions can be seen sweeping over the country in their journeyings, gathering in a harvest of the pests which have become such a scourge to the hardy cultivators of this land of promise. This locality is thus held with the same apparent tenacity by the Golden Plover as the great mast region of our heavily timbered country is held by the common passenger pigeon of America.

The Golden Plover breeds to the north of the United States. These birds, though naturally timid, and usually very shy of the approach of man, are easily reached, provided the proper precautions are used by the hunters, who generally resort to the more convenient means of a wagon, from which they carry on a wholesale slaughter into their well-stocked ranks; and from the apparent inattention which is usually paid to their enemies thus equipped, it would seem that their fear of humanity is limited to man in his primitive condition only, for after volley upon volley has been poured into their ranks with deadly effect, each shot leaving its score or more dead and wounded, they pass along in unbroken line only to receive another cross fire in their next circuit of flight, as they pass over a favorite feeding place of newly plowed ground, or in a grasshopper range.

In the autumn, and more particularly after a protracted drouth to which the vast tracts of prairie or plain of the West is subject at this season; and when the many ponds and sloughs are dry, these birds, after a day spent upon the newly plowed lands, resort

regularly to the sand bars of the nearest streams for the purpose of sanding, washing, and quenching their thirst.

From the regularity of the visits of these birds in former years, to the sand bars of the upper Illinois and Kankakee, they have been called by the resident shooters Kankakee Bar Plover, in that locality. And from the great numbers which sweep over the prairies in spring and fall they have for years passed under the common name of Prairie Pigeons among the grangers and those not up in ornithology.

As the flock comes in sight from the direction of the north or south prairies, a shrill whistle is usually the first welcome, then the chorus of a hundred voices chimes in as though rejoicing at the sight of the liquid element. Such is their apparent ecstasy as they wheel around over their favorite bar, and such their utter disregard of the heavy booming of guns that hundreds are dropped upon the water fluttering in every direction, while the column wheels into line again right over the spot where its dead and wounded companions lie, only to be thinned again and again, until finally driven away. Ordinary precautions seem forgotten or abandoned by these birds when approaching a favorite watering place, and when met with under such circumstances it is conclusive evidence that they have not been long from the breeding grounds, and that most of them are young and inexperienced. The Chicago markets, in spring and fall, teem with this game bird, and while their flights last they furnish a cheap article of diet.

Ægialitis vociferus.—Bon. Killdeer Plover.

The Killdeer, so called from its peculiar note, is an abundant migrating species of North America, found on the plains in great numbers, breeds anywhere; color, rump tawny, tail white with orange brown through part of its length with from one to three transverse black bars, secondaries white, primaries with a white space, forehead white, black bar across the crown, two broad black bands on neck and breast, bill black, feet greyish blue. These birds are found flying swiftly along the borders of streams in pairs and small wisps or bunches in the East, but are seen in great numbers on the plains of the west feeding around the borders of sloughs and ponds associated with others of the genus. They

become very fat in the fall and are generally very fair eating, but often a fishy flavor is present which detracts from their table merit.

Ægialitis Wilsonius.—Cassin. Wilson's Plover.

This is a sea coast species common as far north as New England, and sometimes further. Color: pale ash brown running into fulvous on the neck, black bar in the crown, a broad belt across the throat, no bright ring about the eye, legs flesh color, bill dark, large and stout. These birds are seen mingling with the numerous varieties of bay birds found along our coasts, and as the tide recedes they follow it to pick up the shells and insects stranded by the falling waters.

Ægialitis semipalmatus.—Bon. Semipalmated Plover. Ring-neck.

North America, common. This bird resembles the Killdeer closely in color, but in size is about one-third as large as the former. It also has the bright orange eyelid wanting in *vociferus*.

The "Ring-necks" abound everywhere in great numbers, and are found upon sandy beaches and muddy flats, in loose straggling parties of from five to six to a dozen or more, and frequently with the Semipalmated and Bonaparte's Sand-pipers. They scatter widely apart while searching for food, running swiftly and gracefully over the sand with head lowered. They are at such times usually silent, except when disturbed, when they utter a clear mellow whistle on taking flight. They are tame, and when surprised, run but a few yards, and then stand perfectly still. The young run about as soon as hatched. Birds of the year may at all times be distinguished from the adults by the black of the bands being replaced by dull dirty ash.

Ægialitis melodus.—Bon. Piping Plover. Ring Plover.

Eastern and Middle States common, resembles the last, but paler in color, as hypredominating, also lacking the semipalmation. They are found associated with various beach birds and sand-pipers; they become exceedingly fat during the latter part of the summer.

Ægialitis cantiana.—Coues. Snowy Plover.

This species is found west of the Rocky Mountains, and is common all along the coast of California.

Eudromias montanus.—Harting. Mountain Plover.

The Mountain Plover is common from Kansas to the Pacific Coast. It feeds on grasshoppers especially, and seems to be entirely independent of water. Here also may be mentioned the remarkable Surf bird of the Pacific Coast, *Aphriza virgata*, apparently a Plover, being a connecting link between the Plover and the Oyster-catchers.

All the Plover have a singular habit when alighting on the ground in the breeding time; they drop their wings, stand with their legs half bent, and tremble as if unable to support their bodies. In this absurd position they will sometimes stand for several minutes, uttering a curious sound, and then seem to balance themselves with great difficulty. This singular manœuvre is no doubt intended to induce a belief that they may be easily caught and so turn the attention of the egg-gatherer from the pursuit of the eggs to themselves. Plovers' eggs are recognized all over the world as a great delicacy.

As to the methods employed in securing the smaller Plover, the suggestions in our account of the larger shore birds are of course applicable to the former, both being frequently found associated while feeding. These birds are never hunted with dogs, owing primarily to the habits which bring them to the open sand flats, and also to the fact that they have little or no scent. These remarks are not applicable to the Grass Snipe or Pectoral Sandpiper, which in some respects resembles the Wilson's Snipe, being often found in wet meadows and lying well to a dog.

AMERICAN WOODCOCK.

Philohela minor.—Gray. Blind Snipe. Bog Sucker. Wood Snipe. Timber Doodle.

MIGRATORY, eastern portions of North America. Colors curiously varied; above, black, brown, grey and russet predominate, below warm brown and reddish, differs from the English bird in being lighter in weight, the latter weighing from nine to twelve ounces, the American but from five to eight.

The Woodcock begins its yearly migration, from its southern winter quarters to its more northern breeding grounds, early in the spring, and makes its appearance with us about the latter part of February or the first week in March, when the winter has been open and mild, but in seasons that have been blustery and cold, their travellings are delayed as late as the first of April. They appear to choose the progress of a southeasterly storm on which to make their journeys, and frequently after such rains, are found in great numbers scattered throughout the country.

Very soon after their arrival they begin laying, and hatch their young in about the same time as the quail—three weeks being the period of incubation of the latter bird—and sometimes when sections of the country in which they breed are visited in early spring by severe freshets, thousands of the young are destroyed.

As a rule the Woodcock are in the midst of their family cares about the first of May, and are thus the first of our migratory birds to commence nesting. They waste no time after their arrival, and by the first of April on any clear moonlight night, at all hours, the male may be heard from every quarter, chanting his weird and unmusical song to the object of his affection. This note so closely resembles that of the night hawk as to be easily mistaken for it. If one is ever so fortunate as to approach close to a pair of cock unobserved during the mating season, he will witness the most re-

markable and grotesque actions; the wooer struts around with scraping wings and spread tail, an excellent miniature of the barnyard turkey gobbler, the female looking coy and willing the while. The male now and then makes one of his remarkable perpendicular flights twenty yards into the air, dropping immediately again to her side. When the country north of New Jersey is visited in backward seasons by one of the not unusual hard frosts, the eggs or very young birds are destroyed in large numbers. In many instances the old birds begin immediately to rear another brood. On this account at times scarce fledged nestlings are killed in July. The nest is placed on the ground, the old birds making very little preparation for the reception of their eggs. The latter are four in number, of a muddy white color, splashed and blotched with chocolate.

That careful observer and naturalist, Mr. Geo. A. Boardman, lately in Florida, states the remarkable fact that Woodcock breed in that State, and we have still more recent evidence to the same effect. In both instances young birds fresh from the shell were secured. It has been heretofore supposed that they never bred south of Virginia. The English Woodcock *Scolopax rusticola*, is accidental in North America, and stragglers are occasionally secured along the eastern coast; the last instance on record was in 1870, we believe.

The Woodcock is perhaps the most highly prized of all our game birds. This is owing in a great measure to his gamey nature and solitary habits, the difficulty of securing a good bag without work, and the skill required to kill the bird when flushed.

It is with pleasure that we notice the efforts made by gentlemen sportsmen of the country at large, in the direction of Woodcock protection, and the prohibition of summer shooting. These efforts have been attended with success in some parts of the country, but until the law becomes universal, a great deal of its usefulness is rendered *nil*. This subject is so trite, however, that we need only touch it here in passing.

Granting that Woodcock four years out of five are in condition to be shot in July, how much better, how much more sportsmanlike, would it be to allow them to remain unmolested until autumn, when no doubt can exist of their being in full plumage, strong and vigorous on the wing, and without the cares of a family?

Summer cock shooting, when the mercury stands among the nineties, and in swampy thickets where mosquitoes and flies are swarming in myriads, cannot possibly be compared to autumn shooting of the same bird. In the former season, we have it hardly two-thirds grown, often becoming tainted before we reach home, while in the latter we find it a far more difficult object to bring down, much more puzzling in its flights, and worthy of the sportsman's skill.

About the middle of August, the Woodcock leave their old haunts in low wet localities, apparently almost in a mass, to seek higher and more mountainous sections, where they can pass undisturbed their moulting season, and to remain until early frosts drive them to more sheltered and warmer feeding grounds. It is believed by many that they take to the corn-fields to moult, but we think it safe to say they are only attracted thither in wet seasons for their usual food. We have shot them in such places quite frequently in July and the first of August, but have always noticed the ground was moist enough at the time to admit of their boring in search of worms, the larvæ of insects, etc.

As has been noticed, the birds retire to the uplands to moult, but it is very probable that they descend at evening to their feeding grounds where the earth is soft and can be probed with ease, and there spend the night, retiring again to the hills at break of day. Their migrations are performed by night. In this connection, it may be mentioned that the Woodcock, during their migrations, pursue a direct course, no obstacle seemingly being able to deflect them from their line of flight. On three distinct occasions have we observed them at dusk flying through the streets of New York in some of the most populous districts, and others have made like observations. They fly low and swiftly over the country singly, or in loose twos or threes, and morning always finds them in their favorite haunts. Whether they fly during the whole night or not is undetermined, but it is probable that unless a sudden and severe frost hastens them on beyond their wonted speed, they take it leisurely, stopping and feeding on the route.

Setter dogs seem to be the favorites for woodcocking. The nature of the ground where the birds are found, renders the use of the pointer disagreeable to both the dog and the man, as the tan-

gled cat-brier and blackberry thickets, in the midst of which the summer birds are often found, lacerate the ill protected body of the pointer, and the dog, after one day in such cover, will return home entirely used up, and may refuse thereafter to enter the brush. The thick coat of the setter can easily withstand this inconvenience.

Nineteen out of twenty sportsmen shoot Woodcock over setters and pointers, and although (with dogs that are under perfect command) they show great sport, we cannot think them fully calculated for this work, and we are glad to see that the sporting papers are now speaking favorably of the spaniel not only for cock shooting, but for covert work. The little cockers, almost unknown to this country, are the best dogs for this covert shooting, as they are trained to hunt close, and being so small can force themselves almost anywhere.

To insure success in autumn cock shooting, the sportsman should select a dog that will work carefully and slowly in cover, and be not too anxious to be close to the bird he is pointing, for although Woodcock lie well, they differ from the quail in not being quite so stubborn in their hiding.

In beating for quail in November, we should never neglect working out the hill sides of second growth timber, or saplings adjacent to swampy bottoms, which come in our path for Woodcock. Black alder margins of streams running through woodlands should be visited, for if any flights of birds have come on we will certainly find them in such places. Were all sportsmen millionaires, a special gun for this particular shooting would be convenient; one with short twenty-six to twenty-eight inch barrels to be easily and rapidly moved in the thick cover. One ounce No. 12 shot or possibly No. 10 for the late shooting, two and one half to three drachms of C. and H. or Dupont's powder. A Woodcock is easily dropped when touched with the shot, and it is rare for one to carry away a load.

When the golden days of October are upon us with their accompanying delights of dog and gun, then is the season *par excellence* for cocking. Ah! Sportsmen, think of the increased satisfaction to be derived from woodcock-shooting if you would but forego the summer pursuit of this bird. Let them grow strong and

swift of wing, larger in size, more palatable to the taste. Then will no longer be seen the slow flip flap of the summer bird up through the leafy glades, but the swift whirr of the Timber Doodle from the side hill and mellow ground. A keener eye, a quicker hand will then be needed behind the true and tried Scott or Greener.

Certainly cock-shooting is fine sport where the birds abound, and as it possesses peculiar charms for some sportsmen, and as they are held, by epicures and the sporting fraternity in general, at the head of the list of our game birds, it is well worth the while of American sportsmen to see that they are not entirely exterminated.

WILSON'S SNIPE.

Gallinago Wilsonii; Bonaparte. English Snipe. American Snipe. Jack Snipe. Shad Spirit.

A MIGRATORY species, North America. Crown black with a pale central stripe, back variegated with black, bright bay and tawny, the latter forming two lengthwise stripes on the scapular, neck and breast spotted with brown and dusky, tail barred with black, white and chestnut.

This, the most universally distributed of all our game birds, is also the only one we believe, excepting some varieties of our ducks, found on both sides of the Rocky Mountains. That remarkable range which has separated species more effectually than either ocean, has yet proved an insufficient barrier against the general diffusion of this species. There has been a deal of discussion in regard to the identity of this bird with one of the European representatives of the genus, but our bird is now decided to be a distinct variety although very similar.

The arrival of the Wilson's Snipe with us in the spring is very uncertain, and depends entirely upon the state of the season. If, after a cold and blustering winter, March suddenly opens warm and genial, which is seldom the case, and the frost is drawn from the ground by the sun's rays, we may expect the bird soon to be on our meadows; but not often does he reach us before the middle of the month, and then in small numbers, uneasy in its habits, and scarcely lying to the dog. By the last of March, or the first of April, the great flight of birds arrives from the Southern States, and, like the woodcock, the prevalence of a warm rain appears to be chosen for the migration. The average appearance of the Snipe from Delaware eastward may, in favorable seasons, be set down as about April first, but frequently when the spring is late, and winter has lingered into April, we find it passing hurriedly northward,

scarcely visiting our meadows, and directing its flight to its breeding grounds. We have always thought the Snipe, after tarrying with us until May, are mated, and leave us in pairs ready to begin nesting. In fact, we have on several occasions killed and found in them fully formed eggs as early as the 20th of April, and for this reason oppose the shooting of Snipe during their spring passage northward.

On their return from the North with their young, they pay us a visit before moving South, reaching us in September and October, the first cool weather having prompted them to seek winter quarters. They make their autumnal migrations southward in stages in advance of hard freezing, stopping and resting on the route. This bird is rarely if ever found on salt meadows, confining itself to the low-lying boggy fields bordering fresh water streams where their favorite food, the succulent worm, is abundant. These are secured by probing with their long bill after the manner of woodcock. It is very doubtful whether the sense of smell aids at all in determining the presence of their food, as some have averred. The bill is very sensitive, and a bird by probing can *feel* the worm.

On the meadows of the Eastern and Middle States, a good dog, thoroughly understanding his business in this particular, is invaluable; but in some portions of the Southern and Western country the bird is so numerous that a setter or pointer is of very little use unless he be kept at heel and used as a retriever.

The Snipe lies best to the dog on warm, sunny days, when gentle winds are blowing, and if feeding in high tussock meadows will not take flight until almost trodden upon. But during blustery weather, especially if the wind is from the northeast, they are very loth to allow even the most steady dog to come within thirty or forty yards of them. This is more noticeable in the spring, when the birds have first arrived, and are in whisps or bunches, than in autumn, when they appear to have made up their minds to stay for awhile previous to moving southward.

Sometimes, particularly on a dark drizzling day, which is the weather they prefer for their flights, the flushing of one bird will be the signal for every snipe in the field to rise with a sharp "skeap" "skeap," and the air will be filled with their bleating and their irregular flights. Perhaps they join in a flock and fly beyond

the range of vision, or again individual birds may drop with their peculiarly rapid descent until all have settled again. There is no difficulty in marking down a snipe, their quick, dropping motion is unmistakable.

Beating for Snipe with the wind at one's back, has been always advised by experts, as the bird invariably rises against wind, and flies at an angle towards you, either to the right or left, thus presenting a more easy shot than when going straightaway in a zig-zag course. Sometimes, however, on account of the many ditch drains that interrupt us in our tramps over the meadows, we cannot find it nearly as convenient to take the wind at our backs, and are compelled to breast it; but we should bear in mind that far better chances are given to kill if the above advice is carried out, and always endeavor to follow it.

Snipe in the spring, not unfrequently take to swampy thickets of black alder, and what are known as "willow gardens," with springy bottoms, for shelter and food, when, after their arrival from the south, the country is visited with a snow squall and a touch of the past winter. We have on two occasions found them in such localities lying like stones, making capital shooting, and fully as expert in twisting their way through the sprouts and alders as their larger cousin, the woodcock.

Frequently when flushed, a bird will dart away, flying low at first, but gradually rising will soon seem but a speck in the sky, and then disappear from view, let the hunter keep for a few moments his position, however, and quick as flash the bird may drop down to within a few yards of his former resting place. This is not always the case, as often the snipe may leave not to return. The probable explanation of this is, that in the first case the ground from which the bird was driven afforded good food and cover, and the snipe was loth to desert so attractive a spot. Of the common names applied to this bird, that of "shad spirit" is the most peculiar. It is given them by the fishermen, who, while in spring time drawing their seines for shad at night, often start the snipe from the grassy meadows. Hearing the unknown bird get up before them, and associating it naturally with their shad fishing, they apply to it the sobriquet of "shad spirit." The snipe remains with us frequently as late as the latter part of November. About the

breeding of the snipe, little is known, as it takes place for the most part beyond the limits of the United States. He is, however, a resident of Washington Territory the year through. In the fall and winter he inhabits the tide lands about the delta of the Skagit, and the sedgy flats at the head of Seattle Bay. But as the April showers approach, and the season of mating begins, we miss the long-billed gentleman. He has gone to the mountain marshes, the soft, mucky meadows along the slope of Mounts Rainier and St. Helens. He flits from one tussock to another, probing the mud with his delicate bill for grubs and worms to feed his patient spouse, who has her little nest, with four spotted eggs in it, at the foot of yonder red willow. Here, in sight of eternal snow, he enjoys cool weather when the valley below smokes with the glow of harvest, and a cloud of dust arises from the thresher. Here he struts about on fallen logs with trailing wings and ruffled neck, for the admiration of his mate as she sits on her nest and figures out the probabilities of the next Snipe census. And it is at this season that the male practices the habit, peculiar also to the ruffed grouse, called drumming in the air, by which he beats a perfect reveille with his wings, as he hovers over the nest of his spouse. The grouse (or as they are called here, "pheasant,") does this while standing upon a log, while the Snipe plays his tune when poised in the air. His drumming is not so audible at a distance as that of the ruffed grouse, but it continues longer and the notes are just as distinct.

In our estimation no sport is comparable to an October day with the snipe, if they be tolerably plenty, and the additional requisite of a brace of good dogs is not wanting. Undoubtedly the perfection of snipe shooting is had in Florida during the winter months. Among the legions of our summer birds who here find shelter and protection from the rigors of the north may be seen plentifully dispersed this, the Wilson's Snipe. In some places so thickly do they rendezvous, that a dog is an impediment rather than a help, but in many districts good use can be made of setter or pointer, and the pleasure, we think, is greatly enhanced by one or more canine companions, fully understanding you and their duties. Than the Wilson's Snipe, no more delicious bird can be found, and the premium if divided at all should be awarded, we think, in equal parts to the Snipe and Woodcock.

BEACH BIRDS.

Order *Limicolæ*. The Shore Birds.

NATURE has been so lavish to us of North America in her supply of shore birds or Limicolæ, and they form so important a portion of our avi-fauna, that it may be well to preface the general account of this order here given, by a short descriptive scheme as follows:

Tibia more or less naked below (sometimes very slightly); legs, and usually neck also, elongated; hind toe free and elevated, often wanting. Head globose, abruptly sloping to the base of the bill, completely feathered; gape short; bill weak, flexible, more or less soft-skinned, and therefore sensitive, blunt at tip, without hard cutting edges—fitted for probing in the mud; nostrils slit-like, surrounded by soft skin, never feathered; body never strongly compressed or depressed; nature precocial. Birds of medium or small size, more or less aquatic; found in most regions; very abundant in America.

SPECIAL CHARACTERISTICS: I. Toes lobate; tarsus notably compressed, *Phalaropodidæ*. II. Toes not lobate; tarsus not specially compressed. Legs exceedingly long; tarsus as long as tail; bill much longer than head, slender, acute, and curved upwards; feet four-toed and palmate, or three-toed and semipalmate; *Recurvirostridæ*. Bill usually shorter than head, pigeon-like; the broad soft base separated by a constriction from the hard tip; head subglobose, on a short neck; tarsus reticulate; toes three (except in *Squatarola*); *Charadriidæ*. Bill usually longer than head, mostly grooved, but not constricted, softish to its tip; tarsus scutellate; toes four in number (except in *Calidris*); *Scolopacidæ*. Not as above; bill hard, either compressed and truncate or acute; feet four-toed and cleft, or three-toed and semipalmate; *Hæmatopodidæ*.

The *Charadriidæ* having been noticed in a previous chapter, are not here further discussed.

Very many different species of Shore Birds may often be found associated, and frequently those whose relationship to one another is quite distant, as for instance the Willets and Curlews. Many of the smaller sandpipers so closely resemble each other that one is quite likely to confuse them, the distinctions being in some cases very minute and trivial, dependent perhaps on the shape of a foot or bill. In many species too the color varies with the season, and a bird that is grey in winter may be red in summer. This fact has given rise to a habit, among sportsmen and amateur naturalists, of multiplying the species of this order to an almost indefinite extent. All the species of waders found on our coast from Florida to Labrador are denominated by most of those who shoot them, as Bay Birds. Among these are included the Godwits, Willets, Plovers, Greater and Lesser Yellowlegs, Curlew and the numerous tribe of Sand-pipers. Taken in ornithological order, first of our Shore birds, after the plover, comes

Hæmatopus palliatus.—Temm. Oyster-Catcher.

The name of Oyster-catcher is derived from their habit of prying open the shells of bivalve mollusks, but it is doubtful whether an oyster proper was ever *caught* in this way. The bird is of a sooty black or brown color above, under parts below the breast white, as is also the rump and a ring around the eye; bill red or orange, in shape something compressed and knife-like, legs flesh color. This bird is found on the shores of both oceans, but is nowhere very plenty. He is not prized for food and is rarely shot or hunted by sportsmen.

Strepsilas interpres.—Illiger. Turnstone. Brant-bird. Calico-back. Chicaric. Chickling. Sand-runner.

Of these names, that of Turnstone is applied on account of the curious habit these birds have, by dexterously inserting their bills beneath stones and pebbles along the shore, of securing what insects, or prey of any kind, may be lurking beneath. The names Chicaric and Chickling have reference to their rasping notes, that of Calico-back, to the curiously variegated plumage of the upper

parts. In summer the adult is oddly pied above with black, white, brown and chestnut-red, the latter color wanting in winter and in young birds, below from the breast (which is black) white, bill black, feet orange. This is a common bird on both coasts during migrations.

Recurvirostra americana.—Gmel. American Avocet. Blue Stocking. White Snipe.

A common species of temperate North America, more abundant in the interior than on the coast. Color white, back and wings with much black, head and neck cinnamon-brown in the adult, ashy in the young, bill black, legs blue, eyes red, well-known by its long and slender legs and extremely slender bill which has frequently an upward curve.

Himantopus nigricollis.—Vieillot. Stilt. Long Shanks. Lawyer.

Glossy black above with forehead, sides of head and neck, rump and under parts white, bill black, legs carmine. A common species of the United States, found plentifully in Florida during the winter months, but not very highly prized by sportsmen.

Steganopus Wilsonii.—Coues. Wilson's Phalarope.

A common North American species found most plentifully in the West, around small pools and sloughs, where they breed in numbers. Color of adult, ashy above, under parts white, a black stripe from the eye down the side of the neck, spreading into rich chestnut, which also variegates the back and throat. The bill is easily distinguished from that of any of our other shore birds, being very slender, acute and awl-shaped.

Lobipes hyperboreus.—Cuv. Northern Phalarope.

A more northern species and less known to the gunner. The color is greyish black, back varied with tawny, upper tail coverts and under parts mostly white, side of head and neck with broad stripe of chestnut, the young lacking the chestnut.

Phalaropus fulicarius.—Bon. Red Phalarope.

The best known of our three representatives of the family. It is in color, above variegated with ashy and tawny, below purplish-

chestnut, white in the young, the bill is comparatively stout, with lancet-shaped tip. It is a smallish bird noted for its beauty and elegance of form, its grace and activity of movement. Their lobed feet make them entirely at home on the water, and they are often seen a considerable distance from land. They occur like the Northern Phalarope in the United States only during their migrations, and breed to the north. Classed under the snipes proper and a very snipe-like bird, we come next to the

Macrorhamphus griseus.—Leach. Red-breasted Snipe. Grey Snipe. Brown-back. Dowitcher. Driver.

The color is in summer brownish black above, variegated with bay, below brownish-red, variegated with dusky, a tawny superciliary stripe, and a darker one from the bill to the eye. In winter, plain grey above and on the breast, with no trace of black and bay, belly white. This bird differs essentially from the true snipe in habits, they flying in large compact flocks like the sandpipers, and for the most part inhabiting the shores of bays and estuaries, rather than the wet meadows. They are shot on the shores of Long Island in August in great numbers; they are a migratory United States species.

Micropalama himantopus.—Baird. Stilt Sandpiper.

Not a common bird, but is found in the United States in limited numbers during their migrations. It occurs in the West India Islands during the winter; in color it much resembles the last species.

Ereunetes pusillus.—Cassin. Semipalmated Sandpiper. Peep. Oxeye.

An exceedingly abundant little bird, too common and well known to merit a description. In the later summer they throng our shores, and form staple sport to the youthful and city tyros. They are quickly distinguished in the hand from *minutilla* by the semipalmation.

Tringa minutilla.—Vieill. The Least Sandpiper. Peep.

The smallest of the Sandpipers, in color it resembles the last, but has rather more bay on the upper parts. These two species are always found associated, and are often confounded.

Tringa Bairdii.—Coues. Baird's Sandpiper.

This species is almost exactly similar in color to *minutilla*, but is larger. It is rare on the Atlantic coast, but is found in both North and South America.

Tringa maculata.—Vieill.—Pectoral Sandpiper. Marsh Plover. Jack Snipe. Grass Snipe.

The color is greyish, variegated with chestnut above, somewhat resembling the Wilsons or English Snipe, *Gallinago Wilsonii*, but of course instantly distinguished from the latter by the shape of the bill. The species is seldom if ever seen on open sandy beaches, as it prefers at all times the low muddy flats laid bare by the tide, the pools and ditches which intersect them, and the salt marshes by which they are bordered. They are not restricted to salt water, but frequent low wet meadows and fields at a great distance from any large body of water. When they rise from the grass to alight again at a short distance, they fly slowly and evenly with the wings deeply incurved. When, however, they are frightened, by being repeatedly forced up by the sportsman, or when they are suddenly startled, they spring up vigorously, emitting loud rapidly repeated notes, and fly in a quick zigzag manner. They are then equally difficult to shoot with the Wilsons Snipe. Sometimes they mount with a loud cry very high into the air, and circle overhead for several minutes, flying with great rapidity and in perfect silence. When about to alight, which they often do at the very spot from which they rose, they barely close their wings and dart suddenly down in an almost perpendicular direction. This species is found in pairs or singly, and never in flocks of any great extent. They are excessively fat in the month of October and delicately flavored, and afford delicious eating. They are abundant from Washington to New Hampshire. Very little is known of their breeding places.

Tringa Bonapartei—Schleg. White-rumped Sandpiper. White-tailed Stib.

This bird is very similar in color and size to *T. Bairdii*, the upper tail coverts are white however, and hence the name. This bird is the Schinzes Sandpiper of Audubon. It is common to the Rocky Mountains, and is abundant along the Atlantic coast.

Tringa maritima.—Brünn. Purple Sandpiper.

This is a rather common bird on our Atlantic coast. They confine themselves to the rocky shores and jutting promontories, and are for this reason not frequently secured by sportsmen. The color of the upper parts, ashy black with purplish reflections, line over the eye, and under parts white, breast like the back but lighter in color; in winter the colors are much duller, being a dark slaty grey. The young are mottled with dusky below.

Tringa alpina var. *americana.*—Cassin. American Dunlin. Black-bellied Sandpiper. Red-backed Sandpiper. Stib.

A North American species. Color of the adult in summer, above chestnut, each feather with a central black field, and most of them white tipped, under parts white, belly with a broad black area, breast streaked with dusky, adult in winter, pale ashy grey.

Tringa subarquata.—Temm. Curlew Sandpiper.

An extremely rare bird in this country, but stragglers have been picked up along the Atlantic coast.

Tringa canutus.—Linn. Red-breasted Sandpiper. Ash-colored Sandpiper. Red breast. Grey-back. Robin-snipe. Knot.

An abundant species found along the shores of Long Island and New Jersey in numbers; colors above, brownish-black, the feathers tipped with ashy-white, below brownish red, much the same as in the familiar robin; young, above clear ash with numerous black and white semicircles, below tinged with reddish speckled on the breast. In winter plain grey.

Calidris arenaria.—Illiger. Sanderling. Ruddy Plover. Skinner.

The hind toe of most other shore birds lacking, the color of the adult in summer is as follows: upper parts varied with black, ashy and bright reddish, below from the breast pure white; adult in winter without the reddish tinge, the upper parts speckled and marked with white and black, below white. This is an abundant bird along our coasts. The name of Skinner has reference probably, to the fact of the bird's breast bursting open on striking the

ground or water when shot in the fall. This is the result of their great fatness, and the bursting is called skinning—the bird a skinner.

Limosa fedoa.—Ord. Great Marbled Godwit. Marlin. Humility.

Found in the United States, and breeding to the north, although a few remain with us for that purpose. They are quickly distinguished among the thousands of birds that throng the shores of our Atlantic seaboard by their large size and coloration. General plumage rufous or cinnamon-brown, above variegated with black, brown and grey, bill from four to five inches in length, flesh-colored, and tipped with black. This Godwit, commonly called "Marlin," is becoming scarcer every year. It is a very noisy bird, and has an odd shrill cry that sounds like "*grutto*" rapidly repeated; they are very strong on the wing, and feed in bogs and marshes near the sea shore, have four eggs, and are very delicious as a table bird.

Limosa hudsonica.—Swainson. Hudsonian Godwit. White-tailed Marlin. Humility.

Colored as follows: Tail black, largely white at the base; under parts in the breeding season intense rufous, variegated with dusky, head, neck, and upper parts brownish black, variegated with grey, reddish and sometimes whitish speckling, young and winter plumage of the adult, grey and pale, with less of the ruddy tinge. This is a more northerly inhabitant of the continent than the last, and not so abundant; it is also smaller than the other Godwits.

Totanus semipalmatus.—Temm. Willet. Semipalmated Tattler.

To gunners this is a widely known species, being found in great plenty along our sea coast and in the marshes. They may be called residents of the United States. Being a large bird they are shot extensively, but as a table bird are not highly esteemed. The bird in summer is grey above with numerous black markings, below white, throat, breast and sides streaked and marked with dusky. In winter these markings are lacking, and the bird is of a general ashy grey color. The legs are large and strong, the toes semipalmated.

Totanus melanoleucus.—Vieill. Greater Tell-tale. Greater Yellow-shanks. Big Yellow-legs. Stone Snipe. Tattler. Large Cucu.

This is one of the most familiar of our Bay-birds, his large size, yellow legs, peculiar cry and usual wariness making him an object of eager pursuit to the city-bred sportsman. They are, however, universally disliked by gunners on account of their watchful and noisy nature. They will stand motionless and in silence, carefully regarding the sportsman with watchful attention until he is nearly within shooting distance, when at a single note from one of the flock, all instantly take flight, emitting loud clear whistles of rejoicing at his discomfiture. Later in the season, however, they seem to be less wary, and numbers can be procured without difficulty. Though found in all situations near the water, their favorite localities are muddy flats laid bare by the ebbing tide, the salt marshes adjoining them, and the pools which dot these marshes. They are generally lean and little valued for the table.

A description of this bird is superfluous, as he is, next to the Peep, our most common shore bird among the hordes that populate our coasts, and is unmistakable.

Totanus flavipes.—Vieill. Lesser Yellow-legs. Lesser Tell-tale.

An exact miniature of the last in coloration and its habits are similar, the two are found associated, sometimes both being brought down by the same discharge; what applies to one is true of the other.

Tringa solitarius.—Aud. Solitary Tattler.

A familiar species to most gunners. It is for the most part a resident of the wet woods and marshes, rather than the sea shore. In early fall one or two may invariably be found feeding by any secluded pool or pond, not necessarily near salt water; when frightened suddenly they are silent in their flights, but at other times emit a shrill and not unmusical call. The color is dark lustrous olive-brown above, below white, sides of neck and head streaked with dusky, the tail is beautifully marked with black and white. These birds are common to North America in general. A rather

shy species, breeding in some of the mountainous portions of the United States and north.

Tringoides macularius.—Gray. Spotted Sand-piper. Tip-up. Teeter. Sand lark. Peetweet.

This is one of our very common and abundant shore birds, known to all. They are not found in compact flocks, but in loose companies of from five to ten. Color of adult, above, olive with a coppery lustre, below pure white, throat and breast thickly spotted with distinct black markings, these are wanting in the young, whose breast is white with perhaps an ashy suffusion; they become enormously fat in the autumn, but are poor eating owing to the fishy nature of their food. The nest is placed on the ground often in field or orchard, but always near some body of water, and is a slight affair, merely a collection of dried grasses; the eggs are four in number, of a muddy color, blotched with blackish.

Actiturus bartramius.—Bon. Bartramian Sandpiper. Upland Plover. Field Plover.

An abundant migratory bird throughout North America. It is an esteemed game bird, and is seen in flocks, in fields, not necessarily near the water, their principal food being insects. In color they are blackish above, variegated with tawny and whitish, below pale tawny, breast and sides with bars and arrowheads of blackish, bill and legs pale. This species is far more abundant on the plains of the Missouri River region than on any other section of our country. It is found on the high dry plains any where, and when fat, as it generally is, from the abundance of its favorite food, the grasshopper, is one of the most delicious morsels imaginable. They breed everywhere throughout this country, laying four spotted eggs in a rather deep hollow in the ground, the nest being composed merely of a few grass blades.

Tryngites rufescens.—Cab. Buff-breasted Sandpiper.

In color much like the Bartramian Sandpiper; it is a smaller bird however, and will not be confounded with *Bartramius*. They do not seem to be an abundant species, but are found generally distributed throughout the open country of North America.

Heteroscelus incanus.—Coues. Wandering Tattler.

Peculiar to the islands and coasts of the Pacific, where they are known by a dozen names. The plumage is generally a uniform lead grey above, below white, shaded and barred with grey.

Numenius longirostris.—Wilson. Long-billed Curlew. Sickle-bill. Sabre-bill.

A common resident, distinguishable to gunners from all other birds by the great length of its bill, which measures from five to nine inches. The coloration is much like that of the Marlin, the general tone of the bird being rufous, thickly marked with arrow-heads and bars of blackish.

Numenius hudsonicus.—Lath. Hudsonian Curlew. Jack Curlew.

Also abundant in the United States and breeds in British America. The color is like that of the last species, but a shade paler. It is a much smaller bird and its bill is shorter, being but three to four inches in length.

Numenius borealis.—Lath. Esquimaux Curlew. Dough Bird.

Like the former in color but still smaller, the bill measuring under three inches.

Curlew are generally very abundant and breed in high, hilly, and sandy grounds. The nest is very slight and usually contains four eggs, placed with the small ends together. These birds have a singular way of just keeping out of gun-shot, and rise with a mournful cry, alarming every bird within hearing, thus spoiling the sport among the Willets, as at certain seasons they frequently associate with one another. The best decoy is to tie a dark bandanna handkerchief on the top of a small stick, the gunner lying concealed behind some dry drift-wood, waving the decoy and imitating their cry from time to time. It is not thought highly of as a table bird, but when properly cooked with a little lemon, and good cayenne, it is not to be despised.

An almost endless variety of the *Limicolæ* are found on the shores of Long Island, these localities seemingly being especially adapted to this family and furnishing to them an inexhaustible supply of food.

There are but a few methods employed in the pursuit of these birds as the habits of most of the species are identical. We have thus thought best to close the chapter with a few words on this point.

The best feeding grounds are Pelican Bar, South Bay; Egg Harbor, Montauk Point, Forked River near Barnegat, several promontories near Stonington, Conn., Currituck Inlet, N. C., and Cobb's Island on the eastern shore of Virginia. At the two latter named places, shooting commences early in September, and at the former early in August. To one contemplating a visit to any of these resorts, with the view of enjoying Bay bird shooting, we would give the following advice: If possible, go out very early in the morning on a high flood tide, taking care to select a long narrow sand-bar that is not covered at high-water, and one that juts out from the mainland; gather some dry drift-wood and build a small blind, scooping out the sand. You can then put out a few stools about twenty-five yards from the blinds on the edge of high-water, and commence to imitate the whistle of any bay bird with whose note you have become familiar; if the wind should be blowing on shore and the tide likely to be very high, the sand-bars will be all covered and the birds having no place to alight, fly backwards and forwards across this point waiting for the tide to recede. Never pick up the wing-tipped birds, as they act as decoys; they flutter their wings, uttering shrill whistles, and bring down hundreds of others to see "what is the matter." As the flocks wheel around over the stools and at the instant when during one of their circlings, they show their white bellies, is the time to touch the trigger. You may then secure a dozen birds at a single discharge. Whistling down certain kinds of beach birds to decoys is practised successfully by old gunners who are adepts in this art. Novices had better trust to their decoys. Another plan is to sail leisurely down on the birds as they are feeding on the bars; but if there are any Curlew there, it is necessary to remain perfectly still and hide yourself. The slightest oversight on the part of the sportsman to observe these laws, will cause the Curlew instantly to give the alarm and your sport is *nil*. With everything in your favor, tides, wind, slightly foggy weather, the shooting of Curlew is generally at long range. Now and then you may get a shot at them as they fly over at forty yards

or so. Your clothes should be of a marsh-grass, or sedge color. Always have the barrels of your gun well "browned;" use a ten-bore, four and a half drachms of powder, and one and a quarter ounces of No. 7 shot, a pair of long rubber boots and a light rubber blanket. For the smaller bay snipe you can use No. 10 shot and upwards, according to their size. For Plover, if you have a fine retrieving spaniel, he will be of service.

By these methods are shot Willets, Large and Small Yellow-legs, Dowitchers, Killdeer, Robin-snipe, Turnstones and very many of the smaller Sand-pipers and Plover. The sport is much enjoyed by many, and with us of the Eastern coasts it has the additional advantage of being so convenient and accessible from the city, that many business men can easily and at short notice reach the shooting ground, where circumstances prohibit a long sojourn from the city. In our opinion, however, the pleasures of Bay bird shooting should not be spoken of in the same sentence with cocking or sniping. The birds after being secured are not gamey, and the manner of securing them is tame compared with the inspiriting hunt of the Quail, Woodcock, Grouse or Snipe, where the accessory of a brace of good dogs is not wanting.

RAIL AND REED BIRDS.

FEW of our birds are as little known to the unscientific, as the species which are comprised in the family of the *Rallidæ*. Migrating altogether by night, and passing their lives among the wet meadows and marshes, they are rarely disturbed, except by the ornithological collector, and for perhaps a month in the autumn by the sportsman.

Yet they are very interesting little birds, active, energetic, and above all inquisitive. At high water they may often be seen in considerable numbers running rapidly about over the floating sedge, the head well thrown back and the short, pointed tail erect and brought as far forward as possible. At such times, if the observer will but remain perfectly motionless the nimble little feeders will approach within a few feet of him, and he may note each detail of form and coloring. At the least movement, however, all the birds take the alarm and run back to the shelter of the standing grass or rushes whence they came. Their swiftness of foot is surprising, and they splash along over the floating reeds and grass in a most reckless and noisy race.

That they are not badly frightened, however, is shown by the fact that if all becomes quiet once more they will emerge from their hiding-place almost immediately to inspect the object which alarmed them, and after having satisfied their curiosity, will recommence feeding in their former jaunty and unconcerned manner. While thus engaged they do not confine themselves wholly to satisfying their appetites ; they are not so eager for food that they cannot find time to stop for a little chatter and gossip with one another. Indeed they often indulge in quite protracted conversations, sometimes in the shrillest and most argumentative tones, and at others in low whispered chuckles that can hardly be heard at the distance of a few feet. Often the birds can be called from their grassy hiding-places by an imitation of their shrill

cries, and we have sometimes drawn a dozen birds to the edge of the rushes, where they would stand and peer about until some slight movement drove them back to their cover.

Ordinarily they seem very much averse to using their wings, and prefer to trust for safety to their powers of running and hiding. If possible they will always run to the thick grass or "cat-tails," which the sportsman's boat cannot penetrate. When they have not time to reach such places of refuge they may usually be forced to fly, though they will sometimes hide in a bunch of grass, and permit the boat to be pushed directly over them. Wounded birds resort to every expedient of diving, swimming under water and hiding, and unless the situation is exceptionally favorable for the marker, they are more often lost than secured. We have known them to cling for several minutes to the grass at the bottom, and it is believed that they sometimes drown in this way, rather than expose themselves to the chance of being captured. One of their commonest modes of concealment is to sink in the water near a clump of grass, leaving only the bill exposed above water, and this small object partially concealed by the surrounding grass is easily overlooked.

Rallus longirostris.—Bodd. Clapper Rail. Salt-water Marsh-hen. Mud-hen.

Colors above variegated with dark olive-brown and pale olive-ash, which edges the feathers; below, dull ochre-brown whitening on the throat, often ashy on the breast, flanks, fuscous-grey, with white bars, eyelids and short superciliary stripe whitish. Young birds are dirty-white below. The length is about fourteen to sixteen inches. It inhabits the salt marshes of our Atlantic coast, as far north as Massachusetts, although comparatively rare north of Connecticut. They are exceedingly averse to flying, and prefer to seek safety by their powers of concealment, which are sometimes marvellously exhibited. When, however, a dog follows the scent, and there are no convenient holes into which they may creep, they take to flight, making a very clumsy figure on the wing, dropping suddenly into the grass, and scampering off as fast as possible. Their flesh is poor, and the capturing of this, as well as the two following species, is a matter of chance. The Clapper Rail, however, is only so difficult to secure in the Middle States. Further

south, especially in the Carolinas, they are found and shot in numbers. Audubon speaks of fifty to a hundred birds being killed during a tide.

Rallus elegans.—Aud. King-Rail. Fresh-water Marsh-hen.

In markings, this bird resembles *longirostris*, but the colors are much brighter. It is also a larger bird. It is an inhabitant of the fresh water marshes of the United States, although they are occasionally, during migrations, found in salt or brackish-water marsh-lands; a better table bird than the last, but rarely seen or shot by gunners, on account of their reluctance to fly; they are sometimes flushed by boats, when after Sora, the birds having ventured too far from their impenetrable cat-tails, while feeding upon the wild-oats, the special food of the genus.

Rallus Virginianus.—Linn. Virginia Rail. Red Rail. Corn-crake.

Coloration as in *elegans* of which it is a perfect miniature; length eight and one-half to ten and one-half inches; a common migrating species of the United States, sometimes found beyond the line. This bird is well known to Sora hunters, being shot in the same situation and localities; it is not, however, so peculiarly a fresh water bird, being in early summer, and sometimes late fall, found in the great salt meadows; they are, however, more fond of thick cover than the Carolina Rail, and seldom venture far from such places. When the moon is at its full in September or October, and the perigee, or in "shover" parlance "Pagy," tides take place, the afternoon high-water sometimes almost outtops the cat-tails, and it is at these times that most of the Virginia Rail are secured, for the skiff of the gunner may then be pushed through these ordinarily insurmountable barriers, and the inmates, two or three Virginia Rail, perhaps a Least Bittern or rarer still a Florida Gallinule may be thus started. Still for every fifty Sora, not more than one Virginia Rail is boated.

Porzana Carolina.—Cassin. Carolina Rail. Sora. Ortolan.

Olive brown above, varied with black and numerous sharp white streaks and specks, flanks barred with black and whitish; adult, face and central line of throat black, rest of the throat, line

over the eyes, and especially breast, slaty or bluish grey. This is the most common and universally known of all the *Rallidæ*; later in this account we shall describe the manner of its pursuit.

Porzana noveboracensis.—Cassin. Yellow-breasted Rail. Little Yellow Rail.

Above varied with blackish and ochre-brown, thickly marked with narrow white semicircles and transverse bars, below, pale yellowish-brown fading on the belly, deepest on breast, flanks dark with numerous white bars, small, about six inches in length. This little bird is not supposed to be a common species; confined to Eastern North America. On account of its secluded habits and extreme dislike to take wing, they are very rarely secured.

We were fortunate enough a year since, during the month of October, to make some observations on the habits of *P. noveboracensis* which deserve to be briefly noticed. While working a young puppy on snipe over a wet meadow, we were somewhat annoyed by the dog's often making what we supposed false points. We were unable to start any birds from before him, and several times called him away, supposing that he was standing on the scent of a bird that had recently been there. At length, however, the dog was seen, after standing for a moment, to reach down and grasp at something in the grass before him, and immediately afterwards a small Rail rose and flew a short distance. Recognizing it as a Rail, and seeing that it was very different from anything which we are accustomed to see in this vicinity, we shot the specimen, and when it was retrieved were surprised and pleased to find that it was a Yellow-breasted Rail.

Subsequent examination of the meadows proved that the species was quite common, and we did no small injury to our dog's training by allowing him to hunt the birds after his own method. The little creatures were astonishingly tame, and would hide among the bogs on the meadow, or creep into holes in the ground, from which the dog would draw them forth in his mouth. We caught one in our hands, and killed another with a dog whip. A third flew against the legs of one of the party, and then dropped down into the grass again. In all, about a dozen specimens (of which nine were preserved) were taken in an hour or two, and no doubt had more time been at our command, this number might

have been materially increased. It was apparent that the species was migrating in considerable numbers, and that its supposed rarity is in a great measure due to its retiring habits, and to its propensity for hiding when it can instead of flying. It is evident that a collector familiar with these habits would have no difficulty in securing a goodly number of specimens.

The facts just related would seem to indicate that if collectors did but know where and at what time to look for them, some of the migrating birds now considered rare in certain localities might be found there in considerable numbers; and that as our knowledge of bird life and habits becomes more and more extended, the so-called rare species will gradually be eliminated from our lists, until finally the time will come when we shall know just where and when to look for any given species.

Porzana Jamaicensis.—Cassin. Black Rail.

Color blackish, head and under parts dark slaty, paler on throat, above speckled with white, upper portion of back varied with dark chestnut, flanks white-barred. A very small bird, about five and a half inches in length—found in South and Central America and West Indies, rare in the United States. There are a few instances on record of this bird having been secured in the Middle States, notably the finding of one in Massachusetts in 1869. It was during the migrating season, and the bird was found on the ground beneath the telegraph wires. What was said at the close of our remarks on the Little Yellow Rail about their supposed rarity, may apply equally well to this species.

Gallinula galeata.—Bon. Florida Gallinule. King Rail.

Head, neck and under parts greyish black, darkest on head, paler or whitening on the belly, back brownish olive, wings and tail dusky, edge of wing, stripes on the flanks white, bill and frontal plate red, the former tipped with yellow, length twelve to fifteen inches. An inhabitant of the South Atlantic and Gulf States, occurs occasionally north to Massachusetts.

Porphyrio martinica.—Temm. Purple Gallinule.

Head, neck and under parts purplish blue, above olivaceous-green, frontal shield blue, bill red with yellow tip, legs yellowish;

young with head, neck and lower part of back brownish, under parts whitish, length ten to twelve inches. South Atlantic and Gulf States, north rarely to New England.

Fulica americana.—Gmelin. Coot. Sea Crow.

Color, dark slate, paler below, blackening in the head and neck, tinged with olive on the back, edge of wing and tips of secondaries white, bill whitish marked with reddish black near the tip, feet dull green, length fourteen inches. The feet of the Coot are widely lobed like the Phalaropes, and they are more at home on the water than on the land. They feed along the shores of fresh water creeks and rivers, and numbers are yearly taken by Rail hunters.

By far the most abundant of the Rail in the Middle States, especially during the migrations, is the so-called Sora (*Porzana carolina*); next in abundance come the Salt water Marsh-hen (*Rallus longirostris*), and the Virginia Rail or Corncrake (*R. virginianus*), the latter a bird most unwilling to use its wings, and ordinarily not to be started from the ground except by the aid of a dog. The Coot (*Fulica americana*) is rather abundant in the middle districts, and from its size and habits is perhaps more generally known than the other members of the family. The Florida gallinule (*Gallinula galeata*) is rare, but we have occasionally taken it. This family contains two or three species which are quite rare, and which are eagerly sought after by ornithological collectors. The yellow-breasted rail (*Porzana noveboracensis*) is one of these and the black rail (*P. jamaicensis*) another, the latter being regarded as one of the rarest of North American birds. The European Corncrake (*Crex pratensis*) is only found on this continent as an accidental visitor.

Rail shooting is a sport enjoyed almost exclusively by Philadelphians; certainly in no other city is it followed so regularly, and with so much zest. The season occurs between times, as it were, and after the two long summer months of July and August, when there has been little or no shooting, it is no wonder that September first is hailed with delight by the sportsman.

The numerous flats and islands in the Delaware River at this season of the year are covered with a dense growth of wild oats,

or reed, as it is commonly called, shooting up from the oozy bottom, alternately bare and flooded with water three or four feet at each succeeding rise and fall of the tide. As the reed begins to ripen about the middle or latter part of August, the Rail arrive and soon become very fat, the wild oats imparting to them a delicious flavor when served for the table. Countless numbers of reed or rice birds flock to the same feeding ground, and although not proper game, are much persecuted, more on account of the dainty dish they offer than the pleasure they afford in shooting.

Several varieties of the Rail are killed on the Delaware ; by far the most common is the *Porzana carolina*, or Sora. The *Rallus virginianus*, or Red Rail, a few years ago was more frequently met with than latterly. The *Rallus elegans*, or King Rail is comparatively rare, but at times shot, and the *Rallus longirostris*, Clapper Rail, or Mud-hen, so far leaves his home of the salt meadows as to sometimes fall a victim to his wanderings. The common Coot, likewise of the same family of *Rallidæ*, or Rail, may be considered a rare bird here.

At most, rail shooting does not last longer than three hours during a day, and much depends upon the extent of the tide, and indeed a great deal on the wind and the moon, for it is well known that a full moon, occurring during the prevalence of a northeasterly or southeasterly wind, will bring on a "high water," which is most favorable for rail shooting. The more tide the most Rail, always.

And now to the *modus operandi* of rail shooting. Fully equipped, with plenty of ammunition — one hundred and fifty rounds at least—(it is best to have enough, and not run short as we did on one occasion, contenting ourself with "low boat" while our companions were knocking the birds right and left around us.) Your pusher will row you, we will say from the landing at the Lazaretto, two or three hours before high water, to the upper end of Tinnicum Island, in the centre of the river, where, if the tide is to be a high one, the water will allow the boat to be pushed first on to a flat on the Jersey shore called "Clemmel," which is the lowest on the Delaware. Standing a little forward of amidships you brace yourself while your attendant on the decked end of his clinker-built skiff begins his work ; and it is work, this push-

ing without cessation, of man and boat through masses of standing reed for two or three hours. As the skiff is propelled, the rail, forced to fly by the rising tide and the quick approach of the shooter, presents an easy and simple mark, the poleman attracting the sportsman's attention by a "mark right" or "mark left," as the direction may be, the recovering being the most difficult, owing to the great sameness of the surrounding reed. But such is the skill of these pushers in marking down with their white wooden blocks, of which four to six are always at hand, the birds as they fall, that we have known five birds to have been killed before one was boated, and all were recovered. Seldom, if ever, is a dead Rail lost by any of these men.

Shifting to grounds that allow the ingress of the boat at a later state of the tide the sport is continued, and shot after shot is had in quick succession, each pusher striving to outdo his fellows, until the ebb drives the shooter from the flats to count his head of birds, and to learn who the lucky "high boat" is, for be it known a great honor is attached to the gun and to the pusher of the fortunate skiff.

Frequently one hundred Rail are killed during a tide. Sometimes one hundred and twenty, and never less than fifty, if there is any water at all. It is common while being pushed through the weeds to have shots at teal and larger ducks as they jump from some ditch or pool on the flats, and it is best always to have a spare gun with No. 5 or 6 shot for them. As for rail, we use Nos. 10 and 12. A breech-loading gun is invaluable for rail shooting, and the "high boat" is generally found to be the possessor of one of these improved arms. Last season Rail were unusually plenty, and shooting lasted well into the latter part of October, but we had very few very high tides, one hundred and seven rail being the greatest number of birds shot in a single day.

Before breech-loaders were adopted it required considerable care in fixing up all things necessary for the rapid loading of muzzle-loaders, such as "rail boxes," shot cartridges, loading rods, etc. But now with a breech-loader, which can be secured from a friend, or hired at a gun store, and with from one hundred to one hundred and fifty properly loaded shells, say with two drachms of powder and three-quarters of an ounce of No. 12 shot, one is pre-

pared to strike out for Chester or the Lazaretto, where good, clean, tight boats and the most skillful pushers may at any time be obtained. As this kind of shooting is done altogether from a clean, dry boat the shooter requires no special change of clothing.

To show in what vast numbers this bird is sometimes found on these reedy flats, we will relate an experience of our own. A few years ago, while we were living in Philadelphia, we ran down to Chester, secured a pusher, and started out with about twenty other boats. As all shooting ceases when the tide begins to fall, the boats return about the same time. By actual count, we found that the number of rail killed amounted to fifty per boat, making full one thousand birds killed at one tide, giving a little over three hours' shooting. On that occasion we killed one hundred and three birds, and one or two other boats did a trifle better.

In order to have the best show for a shoot it will be better to secure a pusher beforehand, which can always be done by application at the gun stores of Mr. John Krider, corner of Second and Walnut streets, or Mr. Abm. Peterman, in Dock street, above Walnut, Philadelphia.

There is no law in this State protecting rail. Fair shooting may be obtained on the Hackensack meadows, especially in what used to be known as the English Neighborhood.

Dolichonyx oryzivorus.—Swainson. Bobolink. Reed-bird. Rice-bird. Butter-bird.

Colors in fall, yellowish-brown above, brownish yellow below; crown and back conspicuously streaked with black, rump and sides less broadly so; crown with a median and lateral light stripe; wings and tail blackish, pale edged; length about seven inches. This well known species is found throughout the Eastern sections of our country in the greatest abundance. In the spring time he is the Bobolink of the Middle and Eastern districts and then does he appear in his most showy dress. He is accounted the champion songster of the meadows. During the month of August the males lose their song, begin to moult and assume the plumage of the female as described above. By the first of September they have finished moulting, and retire to the fields of wild oats in immense numbers to feed upon the ripening seeds. At this season they are known

by the name of Reed-bird. Now they are more plenty on the meadows of the Delaware and Schuylkill than elsewhere, and the Philadelphia markets teem with the delicious little birds. Sportsmen do not hunt them; perhaps when railing a few shots may be fired into their dense ranks, as they whirl by, but the markets are supplied by pot-hunters exclusively. As the cooler weather drives them further south they find still another name, being known as Rice-birds and sometimes Ortolan. In the West Indies where they winter in great numbers they are called Butter-birds. They can hardly be called a game bird, but are highly prized by epicures the country through.

SWANS.

BUT two species of Swans inhabit North America, and only one of these is known to the gunners of our Eastern Coast, *Cygnus buccinator*, being found only in the Mississippi Valley and to the Westward. Swans being the largest and most beautiful of our wild fowl, are highly esteemed and eagerly sought for by the sportsman, but owing to their rarity and their extreme wariness, but few are killed. Notwithstanding their great size, they fly with wonderful swiftness, and the thick covering of feathers and down with which they are protected, will turn the largest drop shot. The sportsman then, who has killed his Swan, has reason to congratulate himself, not only on his skill in bringing the bird to bag, but on his good fortune in getting a shot at it.

Cygnus buccinator.—Richardson. Trumpeter Swan.

As has been remarked, the Trumpeter Swan is scarcely or not at all found east of the Mississippi, and it is perhaps most abundant in California, Oregon and Washington Territory, especially at the mouth of the Columbia River; even here, however, it is not common, being greatly outnumbered by the Whistling Swan. It occurs somewhat sparingly during its migrations all over the Missouri River region, and is not uncommon on the waters of the Mississippi River.

The Trumpeter Swan is pure white in color, with the exception of the bill and feet, which are black. The tail is composed of twenty-four feathers, and this character will serve to distinguish it from the Whistling Swan, which has only twenty. The bill is longer than the head, and the bird measures in total length, from four to five feet, and weighs usually about twenty pounds. Audubon mentions one, however, which weighed thirty-eight pounds, and had a spread of wings of ten feet. The Swan is only able to

rise from the water against the wind, and even then is obliged to flap and run along the surface for many yards, before it can gain way enough to rise into the air. The expert sportsman, if he discovers a flock feeding in a creek, narrow river, or pond, will take advantage of this fact, and may often thus make a successful shot at them. This species reaches the interior, from the North, just before the first hard frosts. During the day, it rests in security on large bodies of open water, and at night resorts to the shoals, or to neighboring grassy ponds, for the purpose of feeding. Some are killed while passing from one feeding ground to another, at which times, if the wind is strong and against them, they fly low enough to be within reach of shot. Sometimes, too, they fly within range of points of land where the hunters are concealed, and are killed in this way. In shooting at birds of this genus, the sportsman will do well to aim at the head or neck of the bird that he has selected, as the body is so admirably protected by its covering of feathers, that, unless his gun be loaded with very large shot, the bird, even if hit, may fly far out of reach before falling. The cygnets of this species are pale grey in color, and are much smaller than the full grown birds; they are, however, delicious eating, while the white individuals are, as a rule, tough and stringy, in fact quite uneatable.

About the breeding habits of this species, little or nothing is known, save that the young are produced in the far North. It is not improbable, however, that a few may breed in the high mountains of Montana and Idaho, as the species has been observed during the summer on the Yellowstone Lake by recent explorers.

Cygnus americanus.—Sharpless. American Swan. Whistling Swan.

This species is much more widely distributed than the preceding. It is found throughout the whole breadth of the Continent, as far south as the Carolinas on the eastern seaboard, and beyond the southern boundaries of the United States on the western. In northern New England, however, it apparently does not occur, and it is probable that in its migrations it passes over the land, instead of following the coast lines, as do most of our wild fowl.

This species is somewhat smaller than the foregoing, but is

similarly colored, except as to the bill, which is usually marked at the base with a spot of bright yellow. The nostrils, too, are median, instead of being as in the Trumpeter, in the basal half of the bill. The young are grey.

This species was found by Mr. Dall, breeding in large numbers on the great marshes near the mouth of the Yukon in Alaska. The eggs are generally two in number, yellowish white in color, and measure from four to four and one half inches in length, and from two and one half to two and three-quarters in breadth. In July, when the Swans are moulting and cannot fly, the Indians of Alaska destroy great numbers of them by spearing them with their bone tridents. The few Swans that are annually secured on the Atlantic coast, are for the most part killed on the Chesapeake Bay or at Currituck. They are not systematically pursued, but are generally captured by carelessly flying too close to gunners who are lying in wait for ducks or geese.

Except the Whiteheaded and Golden Eagles, the Swan has no enemies except man, for it is so large and powerful, and so wary a bird, as not to fear the attacks of any animal.

WILD GEESE AND BRANT.

"AS silly as a goose," is an expression which, though entitled to very great respect on account of its antiquity, has long gone out of favor with those gunners who have given much time or attention to the pursuit of these birds, for they are certainly the shyest and least easily imposed upon of any of our wild fowl.

Yes, Wild Geese, notwithstanding all references to their ungainly movement and doltish intellect, still maintain their exalted position in the sportsman's estimation, and he, if keen of observation, will learn from them many things that will materially entitle them to advancement in the mental grade, and prove the truth of another very old adage, which specifies that you cannot judge of things by their outward appearance. A goose, waddling around the barnyard, may not present a very graceful appearance, nor seem anything above an idiotically obtuse bird mentally, yet that ungainly creature, when in its natural state, has an ease of motion in flight which will compare with any of the feathered tribe, and evinces a knowledge of the means of defence, and of escaping the attacks of its enemies that few can excel. There is probably no bird more cautious, vigilant, and apprehensive of danger than this, and these qualities alone should entitle it to more respect than writers unacquainted with its habits have shown when speaking of it, for few carry the objection as far as the table. A round, plump Wild Goose makes a delicious *morceau* for the palate; and all the trouble of hunting after it through marshes, morasses, or lakes is amply repaid when its succulent flesh appears upon the table.

No less than eight well determined species of Geese and Brant inhabit North America, including the Blue Goose *Anser caerulescens*, long regarded as a doubtful species, and considered by older writers the young of the Snow Goose, *A. hyperboreus*. Besides these there are four varieties, so that the list of our geese in

all includes about a dozen forms. In addition to the true geese, two species of *Dendrocygna* are found occasionally near the southern boundary of the United States. This genus consists of somewhat duck-like tree-inhabiting geese of tropical distribution. They serve to connect the *Anserinæ* with the *Anatinæ*.

Besides the other very obvious differences which exist between them, the Geese are readily distinguishable on the one hand from the Swans, by having a strip of feathered skin between the eye and the bill, and on the other from the ducks, by having the tarsus entirely reticulate.

Anser albifrons var. *gambeli*.—Coues. White-fronted Goose. Brant. Speckle-belly.

The White-fronted or Laughing Goose has reddish legs and bill; feathers at the side of bill and on the forehead, white; margined behind with blackish brown; remainder of neck and head greyish brown, but paler on the jugulum. The back is bluish grey; the feathers anteriorly tipped with brown; the breast and belly are greyish white, blotched with black; the anal region, flanks, under and upper tail coverts, white; greater wing coverts edged with white. Tail, sixteen feathers, and colored brown, with white tips; axillars and under surface of wings ashy plumbeous.

This species is by no means abundant on our Atlantic seaboard, and the few that are exposed for sale in our markets during the spring and fall come, for the most part, from the Western States. The bird is found in considerable numbers on the prairies of the Mississippi Valley, and is there called Prairie Brant by marketmen and gunners. It is on the Pacific Slope, however, that the White-fronted Goose is to be found in greatest abundance. In Oregon and Northern California the species is very abundant in the autumn, and some remain all winter; but the greater number go farther South. At the mouth of the Columbia River, and in the valley of the Willamette, it can be found in large flocks, but it seems to be quite scarce along Puget Sound. It appears to prefer the grassy patches along streams flowing into the ocean, or the tidewater flats so abundant in several parts of Oregon and Washington Territory. In this section the Speckle-bellies, as they are there called, feed in

company with the Snow Goose, and are pursued in the same manner as that species. The White-fronted Goose breeds in great numbers in the wooded districts north of the sixty-seventh parallel. It is also abundant in Alaska during the summer, breeding along the Yukon River in companies. It lays from seven to ten eggs in a depression in the sand, no nest being formed.

Anser hyperboreus.—Pallas. Snow Goose. White Brant.

Bill and feet pink, the laminæ of the former very prominent, so that the bird looks as though it were showing its teeth; claws dark. Color pure white, except the primaries which are black-tipped, specimens often show a wash of rusty on head and neck. Length thirty inches, wing seventeen to nineteen inches. Variety *albatus* is colored as above, but is somewhat smaller, measuring only twenty-five inches in length.

Although this species is distributed over the whole continent, it does not seem to be abundant east of the Missouri River. Stragglers are occasionally taken on the Atlantic seaboard, but they are rare. In the Missouri River region this species becomes more numerous, and when we reach the great Interior Basin they begin to appear in flocks of enormous numbers. As with the preceding species, however, the Pacific Slope is the favorite winter home of the Snow Goose. Here it frequents the sand-bars of the Columbia and Willamette Rivers in countless numbers in the autumn, especially during the night and dry weather, the plains being preferred during the cool of the day, or in rainy weather. The usual mode of hunting it is to lie in ambush behind a fence on the prairie, and as the waddlers approach to give them both barrels, heavily laden with No. 1, or buckshot; this is sure to leave half a dozen *hors de combat*, and very often double the number. If the hunter does not show himself, he is likely to get several volleys at them, as the noise frightens them only for a few moments. Should their suspicion be aroused, they rise upward slowly in a dense cloud of white, and sound their alarum notes; but they may not go over fifty yards ere they alight again, so that the amusement may be continued without much toil or inconvenience. Another mode is to mount a horse and approach them as closely as possible, then give them the contents of your barrels, and, if they do

not fly, to draw still nearer, and give them smaller shot at from forty to sixty yards.

Sometimes they are stalked behind trained cattle, which feed gradually toward the flock, the hunter keeping himself well concealed behind his ox. In this way great numbers are secured, for the goose shooters of the West coast use demi-cannons, and load them with all that they will bear.

In Oregon the sportsmen hunt on the prairies during wet or lowering weather, but resort to the sand-bars of the rivers during moonlight nights and sunny days. Some excellent sport can be enjoyed by shooting the birds on the bars as they return from their feeding grounds late in the evening, taking them on the wing as they fly past. A favorite method for hunting them at night is to light a fire on the river bank, or bar, so that its glow may illumine the bewildered birds near at hand, and then to pour volley after volley into them as they rise in the air to escape the unusual apparition, or to study its meaning and purpose.

No matter in what way the birds are killed, there seems to be no diminution in their numbers at the return of each season, as they are reported abundant everywhere, from the Pacific Ocean to the Missouri River. This species winters in Southern California, Texas, and Arizona, reaching its grounds about the first of December, though of course many arrive at their southern home a couple of months before that time.

Of the breeding habits of the Snow Goose very little is known, beyond the fact that they nest in the far North. Their eggs are of a yellowish white color, and are but little larger than those of the Eider Duck. According to Mr. Dall this species does not breed on the Yukon River in Alaska, and is only seen there for a few days in spring on its way to more northern latitudes.

There is no doubt that were a systematic attempt made to domesticate the Snow Goose, it would be in the highest degree successful, and when we consider the excellence of its flesh, it would seem that it might well repay our California sportsmen to preserve their wing-tipped or only slightly wounded birds, for the purpose of trying the experiment. Mr. Ridgway in the *American Naturalist* has given us an interesting account of the voluntary domestication in Illinois of a bird of this species.

Anser rossii.—Baird. Ross' Goose. Horned Wavy.

"Bill studded at the base with numerous elevated papillæ." Colored exactly like the Snow Goose, but much smaller; less than two feet long, the body being about the size of that of a Mallard Duck.

This is a long lost species, recently rediscovered, about which little is known. It is an inhabitant of Arctic America, entering the United States in winter, but apparently not in very great numbers. It has been taken near San Francisco, California, and probably enters the Missouri River region in winter. Of its habits nothing is known. It is perhaps more abundant in the fall in the Red River country than anywhere else, and shooting Wavies on the little lakes with which this region is dotted, is said to be a favorite amusement of the sportsmen of that section.

Anser cærulescens.—Vieillot. Blue Goose. Bald-headed Brant.

The Blue Goose was for a long time regarded as simply the young of the Snow Goose, which species it very closely resembles in all details of form and structure. At present, however, our ornithological authorities have decided that it is a perfectly good species.

The head, upper neck and tail-coverts and most of the under parts white; remaining plumage ashy grey varied with dark brown.

The Blue Goose, or as it is called in some parts of the West, the White or Bald-headed Brant, is distributed during its migrations over the greater portion of the United States. Like its congeners, however, it is rare on the Atlantic coast, and is found in greatest abundance on the Pacific Slope, where it associates with the Snow Goose and the White-fronted Goose. But little is known of its habits.

Philacte canagica.—Bonn. Emperor Goose. Painted Goose.

This handsome species is confined to Alaska and the Northwest coast, and is scarcely, or not at all, known to sportsmen. In size, it about equals the White-fronted Goose. The head, hindneck and tail are white, the former often with a wash of rusty

yellow ; remaining parts wavy bluish grey, varied with pale lilac, and sharply marked here and there with crescent-like black spots. Throat black, speckled with white, quills black and white. This bird is abundant in Alaska.

Branta leucopsis.—Bonn. Barnacle Goose.

A European species which has, it is believed, been taken in this country but three times ; Hudson's Bay, *American Naturalist*, vol. ii. p. 49. North Carolina, *ibid.* vol. v. p. 10, and Long Island, *Forest and Stream*, vol. vii. pp. 181, 245, 277 ; also *Nuttall Bulletin*, January, 1877. This species is somewhat less in size than the Canada Goose, being intermediate between that species and the common Brant *B. bernicla*. Its length is about twenty-eight inches, wing seventeen. Tail coverts, sides of rump, forehead, sides of head and throat white ; back scapulars and wing coverts bluish grey ; under parts greyish white, other parts black. Goose shooters should be on the constant lookout for this very rare bird.

The genus *Branta*, under which this and the remaining species of North American Geese fall, are always to be distinguished from the two preceding genera by having the bill and legs black, and the head and neck black with white spaces. We have but three species to be placed here, with three more or less well marked varieties.

Branta bernicla.—Scop. Brant Goose. Black Brant.

The true *B. bernicla*, is the common bird of the East Coast, but is " rare or casual " on the Pacific, where it is replaced by var. *nigricans*, the Black Brant, which is not found on the Atlantic. The Brant is about two feet in length, and is but little larger than a good-sized Mallard Duck. Its head, neck, body anteriorly, quills and tail, are black. Upper tail coverts, streaks on sides of neck, upper eyelid and sometimes touches on throat, white ; back and under parts brownish grey, the latter fading posteriorly into white, on the belly and under tail coverts. Black of neck well defined against the brown of the breast. In variety *nigricans* the black of the lower neck extends backward over most of the lower parts, gradually fading out behind. The white neck patches, too, are large and generally meet in front. The differen-

ces in size and plumage between the males and females of this species are very slight. The young birds are a shade paler brown than the old ones, and have the wing coverts more deeply margined with white. Brant are exclusive and reserved in their habits, never consorting with other fowl. They hiss at one approaching as other geese do, and their "ruck, ruck," and "r-r-ronk, r-ronk," when trilled off by an expert, is not altogether unmusical. The domestic life of the Brant, the order of the family, the food of the young, their growth and development, are entirely unknown. No one has at any time, we presume, studied their habits from birth to maturity, and consequently that great field for studying character—the home—is lost to us.

Although at many points on our coast live birds of this species are kept as decoys, we believe that in no case have they shown any disposition to breed when confined, in this respect differing widely from the Canada Goose. While in bondage, they drink fresh water, but in a normal condition, if they drink at all, it is of salt water. Their food is almost wholly vegetable, consisting of eel grass and other marine growths. They are said to feed also on the "sand worm," but it is doubtful if they ever partake of fish. Their excrementary deposits, too, indicate a diet almost entirely vegetable, and as they never dive except when wounded and pursued, they must feed where the water is less than two feet deep. Corn alone constitutes the bill of fare of the decoys. At Cape Cod, in ordinary seasons, Brant begin to arrive and depart early in March, and they continue coming and going till the end of April. At times there are immense numbers on the feeding ground. They are too wise to set out upon a long voyage in the teeth of a northeasterly storm, but let the wind haul to southwest, and one will see those nearest shore gobble a quantity of sand—"take in ballast," as the natives say—lift up and swing round, often two or three times to get the proper altitude, then strike out over the beach in an E. N. E. direction, and with such precision as to provoke the remark that each leader must carry a compass in the top of his head to steer by. There is no day during the season above named, when there are not more or less Brant at this point, and with proper appliances and skillful management, large numbers of them may be slaughtered, but no sport is more dubious than this

Brant shooting. The tides, wind, weather, all have their influence, and the birds are often very freakish and do not decoy well.

The course they lay in departing is further on, somewhat deflected, so as to bring them into the Bay of Fundy, up which they pass, lifting over the narrow neck of land to Northumberland Straits, where again they find shoal water and good feeding ground. Here, and along the shore of Prince Edward's Island, they "feed and batten," till the end of May or fore part of June, when they push along still further North. Between Cape Cod and Prince Edward's Island, they rarely stop except when compelled to do so by hard winds or a storm, nor have they at any time ventured far inland or out to sea. Here, however, with an accumulation of strength and adipose matter, they are prepared for the long, tedious, and possibly somewhat dangerous journey that is before them. Leaving the Gulf of St. Lawrence, they proceed along to westward of the Island of Anticosti, and at 65° or 66° west longitude, strike out boldly over the land in a northwesterly direction to the Arctic Ocean. Navigators on Hudson's Bay have not spoken of seeing them in such numbers as to warrant the belief that they make any considerable stop there. Their line of flight from the St. Lawrence to the Arctic is not definitely known, and yet it is certain they pass north between Boothia and Victoria Land, and between Melville Island and North Devon.

That they arrive in the vicinity of Melville Island in vast numbers, and that they pass along Wellington Channel and other Arctic waters to still more northern feeding and breeding grounds, is well authenticated. Brant then, take a widely different route from, and go much further north than the great mass of other migratory birds. What we know, all we know, in fact, of the birds away up in this inhospitable region is gathered from the fragmentary narration of Arctic explorers, and from the birds themselves. That they do go north of seventy degrees, or even eighty-two degrees north latitude, and go in large flocks, is well ascertained. Not, of course, that all the Brant go north of eighty-two degrees, but that nearly all that intend to reproduce their young do. Some from weakness or weariness, caused by the long journey, or possibly from the pressure of the egg for extrusion, or other causes, may drop out of the flock and hence be seen in summer south of seventy degrees north

latitude. Again, some may linger with no intention of breeding, as do the other geese. Sir John Richardson says of geese (vol. 1, p. 251:) "There are a considerable number who do not breed, but keep in small bands and are called barren geese. Of these we saw several flocks." The voice of the Brant is by no means so sonorous as that of the larger geese, and when flocks are flying over at night one can readily detect this species by its vocal peculiarity. Another means of distinguishing it in the air is that it does not often adopt the V shape in flight, and that the flocks, in their migrations, are much smaller in numbers than the other varieties or species.

The methods of capturing the Brant are precisely similar to those employed with its more important relative the Canada Goose, and the reader is referred to the account of that species for information on this point.

Branta canadensis.—Gray. Canada Goose. Common Wild Goose. Grey Goose.

In color greyish brown, below paler, whitish grey fading out posteriorly; head and neck black, with a broad white patch on the throat extending behind the eye. Tail black with white coverts. Length three feet, tail feathers eighteen. North America at large. Variety *leucopareia*. Like the preceding, but black of neck bounded below by a white collar; under parts darker than in *B. canadensis*, and well defined against the white of the lower neck and under tail coverts. Chiefly Northwest coast. Var. *Hutchinsii*, tail with but sixteen feathers. Colored exactly like the Canada Goose, but smaller; only two and one-half feet long. Chiefly West and North; Pacific Coast in winter. The Canada Goose is by far the most abundant and universally distributed of our North American Geese, and in one or other of its varieties is found in all the States and Territories of our country except perhaps Florida and the Gulf States. In Texas, however, it is abundant during the winter months. Although by far the greater portion of the wild geese which pass the winter with us, go north to breed, still in suitable localities, young are reared all over the United States from North Carolina to Canada. They nest in the wilder parts of Maine, and are especially numerous in Newfoundland near the secluded pools and streams so abundant throughout that island.

There, remote from man, they breed undisturbed on the edges and islands of the ponds and lakes. The geese moult soon after their arrival in the spring; and, owing to the loss of their pinion feathers, are unable to fly during the summer or breeding seasons; but they can then run faster than a man on the marshes, and if surprised at, or near a pond, they will plunge in and remain under water with their bills only above the surface to permit of breathing until the enemy has passed by. They feed on berries—preferring that of the *Empetrum nigrum*, and the seeds of grasses. Both the old and young become enabled to fly in September; and as soon after that as the frost affects the berries, and causes the seeds of the grasses on the marshes and savannas to fall to the earth, or otherwise when the snow falls and covers the ground, they collect in flocks, and fly off to the Southern shores of the island, and from thence to the Gulf of St. Lawrence. They remain there until December, and then assembled, take flight in immense flocks to the southern parts of America, to return in the spring.

The Canada Goose also breeds in great numbers on the Missouri River and its tributaries, and in this region often places its nest *in trees*, choosing generally a cottonwood stub not more than thirty feet in height. The young are said to be carried from the nest to the water in the mother's bill, as are the young of the Wood Duck. The writer has seen many broods of young goslings apparently not more than two or three weeks old, when ascending the Missouri on a steamboat in July. The eggs of this species are from seven to eleven in number, and are of a yellowish white color.

The Wild Goose may readily be domesticated, and in many portions of our country they are bred in considerable numbers. It seems to be established by recent letters printed in *Forest and Stream*, 1877, January to April, that, in confinement at least, the young do not lay until they are three years old. They then produce four or five eggs, and the number is said to increase somewhat as the bird grows older.

This Goose is extremely abundant on all high plateaus between the Missouri River and the Pacific Ocean, and rears its young on many of the streams which drain this country. It is exceedingly abundant throughout the West from the first of October to the middle of December. On the plains of Nebraska flocks number-

ing thousands are found along the Platte River late in the autumn, and large numbers of these are killed by both sportsmen and pot-hunters. The favorite method of hunting here, is to dig a hole in the stubble fields frequented by the geese, cover it with straw, and lie in wait until four o'clock in the afternoon, when the birds return to feed, then shoot into them as they fly over, and in this way the hunter manages to return home each evening heavily laden with his spoils. Wounded or dead geese are often used as decoys, and prove valuable auxiliaries to the sportsman. Shooting them on the sand bars, as they return to their sleeping grounds, is also practiced extensively, and generally with excellent success.

When these birds return south at the commencement of winter, they are generally very thin and poor, being quite worn out by their long journey. They soon recuperate however, and ere long become fat and very delicious eating.

The methods employed in capturing the Canada Geese are very numerous and vary in different sections of the country. In the west it is sometimes possible for the gunner, having carefully trimmed his boat with reeds and grass, or, if it be in winter, with cakes of ice, to scull on to the flock down wind so that in rising they will give him a fair shot. This plan is never, we think, successful here in the East, as the geese are so much persecuted that they take the alarm at the sight of any large floating object, even though it may have no resemblance to a boat. In Minnesota, where the geese gather in enormous flocks in spring, to feed on the young wheat, they may sometimes be approached on horseback so closely that the rider is enabled to charge among the flock, and before the birds can rise out of reach, several may be secured by knocking them down with a club. This method is also employed, and with much greater success owing to their greater numbers, against the geese in California and further south. These birds are also shot in considerable numbers as they fly to and from their feeding grounds, and if they have to contend against a strong head wind they usually fly low and give the gunner the best of chances. Brant, and sometimes too, Canada Geese, are shot from batteries on the South Shore of Long Island and with satisfactory results.

By far the most successful mode employed for the capture of

the Wild Goose is that generally in vogue along the South Shore and at Currituck, two of the best shooting grounds on our Atlantic seaboard, viz.: over live decoys from sink boxes. Sink boxes are oblong water-tight boxes about six feet in length by two and one-half wide, and eighteen inches deep. These boxes sunk in the sand until the tops are just flush with the surface of the ground, constitute the sportsman's blind. A spot is chosen on the sand-bars of the bay where the geese are wont to resort for purposes of resting or feeding. Here the boxes are sunk and the live decoys are fastened to stakes in shoal water. The hunter lies upon his back in the box, and watches for the approach of the flocks of geese. It is customary to allow the birds to alight with the decoys and to give them one barrel on the water, and the other as they rise. In some parts of the country live decoys are said to be used with success, on land, calling down their wild brethren from on high as they pass to and from their feeding grounds. In such cases a blind of corn stalks is placed near the decoys and from this place of concealment the sportsman levels his death-dealing tube.

SHOAL-WATER DUCKS.

Anatinæ.

OF all the birds which during spring and fall traverse our country, probably none equal the ducks in point of size, numbers and economic value. This group is confined neither to the sea coast, nor to the interior, but is spread out over the whole breadth of the continent, in summer extending its migrations to the furthest north, and in winter only proceeding so far south as it is forced to by the freezing of the waters of its northern home. The great numbers of ducks with which sportsmen are familiar, may be conveniently classed under two distinct divisions or heads, the classification being drawn, in the main, from their habits, but at the same time agreeing with their ornithological arrangement. The first class may be termed Fresh-water, River or Shoal-water ducks, and includes those species which are generally found on rivers, lakes and ponds, and whose food consists mostly of vegetable matter. Here may be placed *Anas*, *Chaulelasmus*, *Dafila*, *Querquedula*, *Spatula*, *Mareca* and *Aix*. Among these are included two Old World birds which are merely accidental and very rare on this side of water. Some of the distinctive traits of the *Anatinæ* are as follows. None of the family are extensively maritime as are the *Fuligulinæ;* they are, however, by no means confined to the fresh water, being often found associated with the sea ducks in large numbers. They feed along the shores of rivers and creeks, on herbage, seeds and succulent grasses, and do not dive for their food. The females are also almost always found different in color from the males. Of the River ducks the first on our list comes the familiar Wild Drake so well-known throughout the land.

Anas boschas.—Linn. Mallard. Green Head.

A bird found throughout the world and everywhere domesticated. It is particularly abundant in the United States in its wild

condition. In color the Mallard resembles almost precisely the barnyard drake, but the colors are purer, more marked, and the orange of the feet more brilliant. Length about twenty-four inches, weight two and one-half to three pounds. The female is in color dull yellowish-brown streaked and spotted with dusky, like the female of the domestic duck. Mallards breed in limited numbers in the various swamps and sloughs of our Western country, but by far the greater portion continue their flights to the far North. They appear again in the latter part of August, their numbers multiplied enormously by the new broods, but the best of the shooting does not commence until the middle of September, and continues until the freezing of the waters drives the ducks still further south to genial climes. Their habits vary in the different localities they frequent, and a variety of methods are employed in Mallard-shooting. Common places of resort are the extensive wild rice marshes which abound in Wisconsin and Illinois. The seed of this plant is the favorite food of the Mallard, and they, with thousands of our other fresh water fowl, repair to these localities. As colder weather approaches and ponds begin to skim over with ice, the Mallards betake themselves to the rivers where they congregate in vast flocks. At this time they frequently make journeys morning and evening to neighboring corn-fields and the like, for food. They feed principally by day; in field shooting the usual call note should never be imitated as it will merely serve to frighten the birds; if the hunter is skillful, and can at these times imitate their low chattering notes he may call some ducks to his stand. Large bags are sometimes made at ice holes where the ducks come to roost and drink, also at the mouths of spring-creeks, the bottoms being covered with gravel, which the ducks seek to aid digestion. In the spring time when the heavy timbered "bottom lands" are inundated by the rising of the rivers, Mallard may be found sitting in large bodies both night and day in the depths of the woods, particularly among the maple and willow timber, where they feed on the insects, buds and vegetable matter floating on the surface of the water. On being routed, instead of settling in some other place of greater security, they will shortly return singly or in small parties, affording most excellent sport. If the sportsman can but find some cover—an old log, stump, or clump of bushes in the

proper location, it should be utilized for concealment. Mr. Long in his excellent and useful book on wild fowl shooting gives an exhaustive account of how to shoot the Mallard at all seasons and at all hours of the day; we cannot do better here than give a few of his ideas. He divides the shooting into morning shooting among the wild-rice fields, and feeding grounds, which is carried on in a boat with or without a retriever, two persons generally occupying each craft, one to paddle and the bow man to attend to the shooting. Secondly, into midday shooting at the sloughs and ponds to which the ducks resort after being driven from the feeding grounds. In this shooting a retriever is invaluable, and facility in imitating the call of the ducks is also essential; perhaps two hunters station themselves on opposite sides of the slough or pond in the midst of the woods, and as the ducks, scared from their feeding grounds, drop into these places for rest and refuge, they instantly obey the call. The hunter should leave all dead ducks to act as decoys and he will do well to fix them as naturally in the water as possible. This is accomplished by running a stick sharpened at both ends into the bottom of the pond, if shallow enough to allow it, and inserting the other point into the throat of the duck, or soft part at the base of the lower mandible; this will keep the head in a natural position, and if possible another stick with perhaps a fork in the upper side may also be placed in like manner beneath the tail; these make decoys much superior to artificial ones. Thirdly comes evening shooting which is practiced in two ways, by following the same plan as in morning shooting in the rice fields, or by standing near some of the passes where the ducks are known to fly toward their roosting and feeding grounds. Besides these methods, one quite common is the shooting during the late fall, perhaps during the prevalence of a snowstorm, in the corn-fields; blinds should be built of corn-stalks fixed naturally together, the hunter should dress in white or some very light-colored garments and here also the dead birds should be used as stools. As has been mentioned too, the shooting of Mallard and the various ducks with which they are found associated, may be successfully practiced on the approach of winter at the ice holes, which the birds keep open, and scores may sometimes be thus secured. The spring timber shooting is also very attractive sport.

A squawker or duck call is thus described, and to be used when one is not proficient with the means nature has provided. "Take a tube of wood or metal, bamboo cane is usually the best, about three-quarters of an inch in diameter inside, and four to eight inches in length. A plug about three inches long is fitted to one end, and after being split in two, one half is grooved to within a quarter of an inch of its smaller end, the groove being perhaps a quarter of an inch wide, and of the same depth. The tongue is simply a thin piece of steel, copper or brass, which should be hammered to increase its elasticity; it should be about two and a half inches long, and from three-eighths to a half an inch wide, at one end, which should also be thinner than the other, the corners should be rounded. The tongue is then placed over the grooved half, the round end nearly to the extreme smaller end of the plug, and the tongue completely covering the groove. The other half of the plug should be shortened about an inch and a half from its smaller end, and then being placed on the grooved half, thus holding the tongue fast, both should be pushed firmly into the tube. By blowing in the other end of the tube the call is produced, the tone, degree of firmness, etc., of which, is regulated by the shortened half of the plug, moving it in or out as a finer and sharper or lower and coarser note is required." Of course experience and practice are required to become skilful in the use of this instrument.

Anas obscura.—Gmelin. Black Duck. Dusky Duck. Black Mallard.

The Black Duck is about the size of the Mallard, and resembles the female of that species excepting that the general tone of the coloration is much darker, being brownish black in some places, and lighter below. Bill yellowish green, feet orange red, the webs dusky, length twenty-four and a half inches, weight about three pounds. The female resembles the male, but the colors are less clear, and the bird is smaller.

The Dusky Duck seems to take the place in the East occupied by the Mallard in the Western States and Territories, although a few are always found associated with the Mallards, just as a few Mallards are frequently met with in the east, in resorts common to the Black Duck. The latter is, however, rare west of the Mississippi, but has been noticed at one point west of the Rocky Moun-

tains, having been observed by Dr. Yarrow, at Rush Lake, Utah. See Zool. of Wheeler's Survey, vol. 5, p. 473. They are peculiar with respect to their partial migrations, for they have been found breeding in Texas and Labrador at the same time, and they are exceedingly plentiful in New England in winter, where they likewise breed.

The Black Duck is a very wary creature, exceedingly difficult of approach, and stratagem is the only recourse, if we hope to be successful. They are rarely found in great numbers, except when congregated on salt water, five to ten being an average flock started from pond and feeding ground.

During very severe winters, when every sheet of water is bound in with a thick covering of ice, the Black Duck are driven to warm spring holes where the water never freezes, and hunters often make large bags by concealing themselves near such places. The approach of evening drives the ducks from the bay or sound, where they have been sitting during the day, and they seek these open inland spots for food and shelter. Brush houses are also constructed of sedge, cedar boughs, etc., at the mouths of fresh water rivers and creeks, in places where the marsh land is low and intersected by branches of the main stream. Here the ducks come to feed at night, and a wholesale fusillade is opened upon them by those concealed. The brush house is left standing, and the ducks soon avoid entirely this locality, and feed elsewhere. This brush house building on feeding grounds cannot be too severely condemned.

Still another method is pass shooting; that is, standing, on blowy blustering days of the late fall, when the wind is the southwest, in belts of woods, over which the birds fly when travelling in their afternoon flights to the roosting and feeding grounds; the ducks often fly low and give good chances. Black duck feed at night, and are off at daybreak. They afford delicious eating in the fall, and are a great market bird. They are almost universally known in the west by the name of Black Mallard. The use of decoys in the pursuit of the Dusky Duck is generally futile. Concealment is the primary object. The hints and suggestions in our account of the Mallard, will many of them apply equally well to this bird. This is also true of all our shoal water ducks, for their habits are very similar.

Dafila acuta.—Linn. Pin-tail. Sprig-tail. Sharp-tail. Water Pheasant.

Color; head and upper neck dark brown with green and purple gloss, sides of neck with a long white stripe; lower neck and underparts white, dorsal line of neck black, passing into the grey of the back, which, like the sides, is vermiculated with black. Tail, when fully developed with the central feathers much projecting and nearly equaling the wing in length, bill black, feet greyish-blue.

The Pin-tail Duck is everywhere abundant in the United States, excepting in the eastern districts where their favorite food is inaccessible to them. It is a fresh water species, although occasionally secured in the creeks and bayous of the coast. They move in very large flocks, and seem much the most abundant in the spring season, associating with the Mallard, and often seeming to travel and feed with the same flock for days. They are exceedingly fond of beech-mast; but in spring generally resort to partially submerged corn-fields where food of various kinds is plenty.

The flight of the Sprig-tail is much more rapid than that of the Mallard, and resembles in its quick darting and wheeling motions, that of the ubiquitous Old Squaw or Long-tailed duck of the eastern coasts, *Harelda glacialis*. They are, perhaps, the most graceful of the whole duck tribe. They are secured in the same situations and by the same means as those employed in Mallard shooting. They have a call-note, a low plaintive whistle of one tone, two or three times repeated, which they will answer readily upon its being well imitated; Mallard decoys may be used, and the Mallard call described heretofore. Sprig-tails are very plenty in California.

Chaulelasmus streperus.—Gray. Gadwall. Gray Duck.

The color of the Gadwall is black and white, or whitish, the plumage being barred or half-ringed with these two colors, middle wing coverts chestnut, greater coverts black, speculum white, feet orange-yellow, bill bluish black, weight about two pounds.

This large duck is common in the United States, although very unequally distributed. It is, perhaps, a more common resident of Tennessee and Missouri, than any other portions of the country. Gadwalls are classed as a table bird, with the Mallard and Redhead, and indeed in habit they much resemble the former,

although perhaps bearing a still nearer affinity to the Widgeon. They stool well to Mallard decoys, and their note is very similar to that of the latter. They rarely dive except when wounded, and they then cling to the roots at the bottom for a long time. The methods of shooting the Gadwall are identical with those employed in hunting Mallard or Sprig-tails.

Mareca penelope.—Selby. European Widgeon.

Head and neck reddish-brown, top of head creamy or brownish-white, its sides with mere traces of green, otherwise similar to the next species. This species is an accidental visitor to our coasts. Gunners should always be on the lookout for such birds, and when specimens are secured, should have them preserved.

Mareca americana.—Steph. American Widgeon. Bald-pate.

Head and neck greyish, dusky speckled, top of head white, its sides with a broad green patch, upper parts brownish-black and light brownish-red, breast brownish-red, under parts white ; weight about one pound fourteen ounces.

The Widgeon is abundant throughout North America, although much more common in the Western States than along our seaboard. They are unusual in New England, although occasionally shot along Long Island coasts. They are plenty in Chesapeake Bay, where they associate with the canvas-back, and are said to have a trick of stealing from the latter the wild celery upon which both feed. They rarely dive themselves, but wait for the canvas-back to reappear with the succulent roots, when the Widgeon makes at him and snatches away the morsel.

The call of this bird is a plaintive whistle of two tones and three notes of nearly equal duration. They stool well to any shoal-water duck decoys, and answer their call. The Widgeon is rather more shy than the ducks with which they associate, their flesh is excellent, and the modes of shooting the same as those already detailed.

Querquedula crecca.—Steph. English Teal.

No white crescent in front of wing, long scapulars, black externally, internally creamy, otherwise like *carolinensis*. A European species casual on the Atlantic coast.

Querquedula carolinensis.—Steph. Green-winged Teal.

The Green-winged Teal is colored as follows: Head and upper neck, chestnut, with a broad glossy green band on each side, whitish-bordered, uniting and blackening on the nape, under parts whitish, the fore breast with circular black spots, upper parts and flanks closely waved with white and blackish, speculum rich green, hence the name, bordered in front with the buffy tips of the greater coverts, behind, with the white tips of the secondaries; weight about ten ounces.

The Green-winged Teal is a more hardy bird than his near relative the Blue-wing, the former remaining much later in the season and making his appearance again earlier in the spring. The Green-wings are perhaps not quite so highly prized for the table as the others, but there is little choice, as their food and habits are the same.

In the spring they resort to overflowed grassy prairies and feed on the seeds of grasses, and so forth, which float on the surface of the water. Their call can be imitated but perhaps not described. They will come to stools, and obey an imitation of the call. A breech loading gun in Teal shooting is invaluable, as in firing into a dense flock, many are crippled and unless shot again will escape. Teal shooting is, however, not followed to any extent in the West, as when Teal are plenty, the larger and more formidable Mallard, Gadwall and Sprigtail claim the sportsman's attention, and the little Teal go unmolested. This bird is more a maritime species than the Blue-wing, the former being found in the creeks of the coast, the latter rarely or never.

Querquedula discors.—Steph. Blue-winged Teal.

Head and neck blackish-plumbeous, darkest on the crown, a white crescent in front of the eye, back brownish-black glossed with green, wing coverts of sky blue with metallic lustre, lower parts pale reddish orange, shaded on the breast with purplish red and thickly spotted with black. Length about sixteen inches; weight twelve ounces.

This Teal so much resembles the last in size, habits, and other particulars as hardly to warrant a long description. They

are found chiefly in reedy ponds where they are quite unsuspicious. They seem everywhere abundant east of the Rocky Mountains, and are replaced west of that great barrier by the Cinnamon or Red-breasted Teal, *Q. cyanoptera*.

The flesh of the Blue-wing is one of the greatest delicacies accorded to the sportsman or epicure. They are among the first of the ducks to make their appearance in their migrations from the north, and at this season, early fall, congregate in much larger flocks than in the spring. Their principal food consists of wild oats, grass, mosses, and insects found in and along the ponds and creeks. They may frequently be found at mid-day sitting beneath the leaves of large aquatic plants, apparently to avoid the fierce noonday sun. They rarely feed in sandy bottomed ponds, preferring a muddy and weedy bottomed slough.

In flight they are swift and graceful, skimming low over the water, and, as they fly in closely packed masses, a number may be dropped at a single shot, but the cripples are very skilful in concealing themselves and may escape by sinking their bodies low in the water and paddling rapidly away among the dense weeds and brakes. Number six or eight shot is a convenient size for Teal shooting. They stool readily, and their note, which is a feeble imitation of the Mallard's, will immediately call them down.

Querquedula cyanoptera.—Cassin. Cinnamon Teal. Red-breasted Teal.

Head, neck and underparts rich purplish chestnut, darkening on crown and black on belly, rather larger than, but otherwise similar to *discors*.

This bird as already noted, seems to fill the same office west of the Rocky Mountains, that the green and blue-winged varieties occupy on the eastern half of the continent. The habits of the Cinnamon Teal and the methods to be employed in its pursuit are identical with those already mentioned. For an interesting account of this species, see Coues' "Birds of the North-west," p. 568.

Spatula clypeata.—Boie. Shoveller. Spoon-bill.

General coloring as follows: head and neck green, forebreast white, belly purplish-chestnut, wing coverts blue, speculum green, bordered with white and black, some scapulars blue, others green

white striped, bill twice as wide at the end as at the base, feet red. The female in general aspect resembles the female Mallard but may be known by its size and by the shape of the bill. The Spoonbills are rather rare in New England, although we have taken them in Connecticut. They are, however, abundant in the Middle and Southern States, and are also found in large numbers on the prairies of Illinois and Missouri, associated with the Mallard, and generally throughout the west.

They fly thickly together, and are easily killed when hit. Like the rest of the shoal-water ducks, they are averse to diving and seek safety when wounded in concealment above the water. They are never difficult to approach, and stool well.

Aix sponsa.—Boie. Wood Duck. Summer Duck.

Crested, head iridescent green and purple, with parallel curved white superciliary and postocular stripes, and a broad forked white throat patch, upper parts dark reddish-brown with bronze and purplish reflections, breast and abdomen greyish white, sides of neck and its lower part reddish purple, each feather with a white tip, feet dull orange, bill bright red at base, yellowish on the sides, and black above.

This beautiful and familiar bird is seen in all the fresh waters of North America, but is rarely met with on the coast, although occasionally taken. They are much more plenty in some sections than others. They are rather exclusive in habits, not mingling freely with others of the duck tribe, but found frequently feeding on the same ground with the teal. They are peculiar in regard to their mode of nesting, being the only members of the *Anatinæ* that do not build on the ground. They select as a domicile a hollow tree, perhaps an old woodpecker's hole or some natural excavation, and there hatch out their young, who soon after birth, are carried in the bill of the parent to the nearest water. It seems marvelous at times to see the old birds enter or emerge from an aperture apparently scarce large enough to admit a bird of half their size. Their resplendent plumage glinting in the sunlight as they dart to and fro through the forest aisles, is indeed a lovely sight. It seems a pity at times to murder the innocents, but, looking at it from an æsthetic point, their flesh is really a *bonne bouche*.

They seldom dive for their food, which consists of acorns, pond mosses, wild oats, insects, wheat and other grain. The most successful method of hunting the Wood Duck is by "jumping" them along the creeks and rivers which they frequent. The best season for this sport is the latter part of August and September; they are fond of sitting on old logs and rat houses in the middle of the day, preening and sunning themselves. They are not easily decoyed, and when hit generally fall, but if wounded, run up the banks of pond or stream and conceal themselves deftly, it being then necessary to put a dog on the trail in order to discover their retreat. The Wood Ducks are also prized for their fine plumes and feathers, which form quite an article of commerce. No better trout or salmon flies are made than those manufactured from these feathers. The account of this species found in Audubon's "Ornithological Biography," is intensely interesting, and gives excellent ideas of the habits of the bird.

SEA DUCKS.

THE group which we have now to consider, differs widely in many points of structure and habits from the one discussed in the preceding chapter. Sea Ducks may always be distinguished from Fresh-water Ducks, by having the hind toe lobate, that is, provided with a little flap of skin on its lower side, instead of simple. The legs of the former group are also placed farther behind than in the latter, and they are thus better fitted for swimming, though not so well adapted for progression on land. The feathering too of the Sea Ducks, is much the most dense, and they are all provided with a large supply of thick down next to the skin, which in many species is of no small commercial value. Owing to the foregoing points of diversity in structure, this group is considered by naturalists as a sub-family of the great family *Anatidæ*, and is called the *Fuligulinæ*.

In habits the differences between the Fresh-water and Sea Ducks are no less striking. The latter dive for their food, which the former never do; they are chiefly maritime in their distribution, although all, or nearly all, retire to fresh water lakes to rear their young. Their food is chiefly animal, though two or three genera are mixed feeders, devouring indifferently animal or vegetable matter. As a rule the *Fuligulinæ* are not highly prized for the table, owing of course to the peculiarities of their diet, but the birds of the genus *Fuligula* which includes the Canvas-back, the Red-head, Broadbill, and others, are notable exceptions, being among the most delicious of our game birds. The excellence of the bird's flesh depends entirely upon what it feeds upon, and the Canvas-back confined to a diet of shell fish alone, would be no better than a Coot. It was our intention at first to have separated the *Fuligulinæ* into two classes, mixed feeders and animal feeders, but the two grade into one another so gradually that it is difficult

to draw the line between them, and on the whole it seems best to treat the whole group together.

Fuligula marila.—Steph. Greater Scaup Duck. Big Black-head. Broad-bill. Blue-bill. Raft Duck. Flocking Fowl.

In the male, the head, neck and body anteriorly are black, the former with a greenish gloss; lower back, rump and tail blackish, under parts white with fine wavings of grey or black on belly and sides. Wings black, a patch on the secondaries (the speculum) white; back white finely waved with black. Bill bluish. Length about twenty inches. The female is somewhat smaller, has the face white, is dull brown where the male is black, and has the wavings on the back indistinct or lacking.

This is one of the most common of our Sea Ducks, and during its migrations enormous numbers are killed in the West. Driven to the seaboard by the freezing of inland waters, it is shot all through the winter and spring by gunners along the coast. It is found in California in great numbers in winter, and there associates with the Mallards and Canvas-backs. The Broad-bill, as it is usually called on the Atlantic coast, comes up well to decoys, and it is by the use of these that they are killed in the greatest numbers. Sometimes they fly across points and bars during their passage from the roosting to the feeding grounds and back again, and if the gunner should find himself at one of these points just before daylight or sunset, he will be likely to have good shooting for an hour or two.

Although by far the greater number of the Scaups proceed to the North to breed, still there are a few which make their summer home in the upper Missouri region. They are not nearly as numerous here, however, during the summer, as is the next species.

Fuligula affinis.—Eyton. Lesser Scaup Duck. Little Broad-bill, etc.

Precisely similar in color to the preceding species, but smaller, being only about sixteen inches long. In habits also it resembles the larger Broad-bill with which it is constantly associated.

This species has been regarded as of doubtful validity, but is now generally accepted as a good one. It seems to be a smaller, more southern form, and in its migrations proceeds farther south

than does *marila*. It breeds in great numbers on the sloughs and alkaline pools of northern Dakota and Montana.

Fuligula collaris.—Bon. Ring-necked Duck. Tufted Duck.

With a general resemblance to the two preceding; an orange-brown ring round the neck; back blackish slightly waved with whitish. The female resembles that of *marila* but lacks the white face of that bird, having the chin, a ring round the eye and the lores whitish. In height it is about eighteen inches. This species is not very common along the Atlantic coast, though a few are killed now and then mingled with the great flocks of Broad-bills that throng our bays. On the waters of the Western States, however, they are said to be more abundant and are shot in the same manner as the preceding species. They breed in small numbers in the marshes of northeastern Illinois, but the great body proceed north to the fur countries to rear their young.

Fuligula ferina var. *americana*.—Coues. Red-head. Pochard.

Feathers of the head rather long, giving it a puffy appearance. Bill dull blue with a black belt across the end, broad, depressed, shorter than the head the nostrils within its basal half. Male with head and neck chestnut red with bronzy reflections; foreparts of body, rump, wings and tail black, under parts white, speculum bluish, back, scapulars and sides whitish waved with black, the dark waved lines unbroken. Iris yellow. Length twenty inches. Female everywhere duller in color than the male. Always to be distinguished from other ducks by the shape of the bill.

The Red-head is not common along the coast of New England, but is found during the winter months in considerable numbers along the South Shore of Long Island. From this point south it is extremely abundant, and nowhere more so than in the Chesapeake Bay and at Currituck, where immense numbers are killed each season. Its flesh is excellent, and where it is enabled to feed on the well-known *Vallisneria* it is fully equal in point of flavor to that of the Canvas-back. In the Western States the Red-head is an enormously abundant migrant, both in spring and fall. It generally reaches northern Illinois in its spring passage about the last of March, remaining until the latter part of April, when it takes

its departure for its breeding grounds in the far North. It arrives on its return journey late in October, and remains on the rivers, lakes and sloughs until the cold weather, by freezing up its feeding grounds, forces it to go further south. It is altogether probable that a few of these birds breed in the Rocky Mountain region within the limits of the United States, though the great body pass on to more boreal latitudes.

The diet of the Red-head is by preference vegetable, though in default of a sufficiency of food of this nature, they will, like other ducks, eat frogs, tadpoles, and various mollusks. In the West they feed largely on corn and wheat which they glean from the fields, and on wild oats, the seeds of the water lily, and the roots and leaves of other aquatic plants. While feeding they mingle freely with other ducks, but in flight they keep by themselves. They are good swimmers and divers, though by no means as expert as the more truly maritime ducks. The Red-heads come up well to decoys, and in the West they are most successfully pursued by shooting from a blind near their feeding grounds. The decoys are anchored on the spot where the ducks feed, and the gunner from his place of concealment has nothing to do but to load and fire. On our Atlantic coast this species is shot in the same manner as the Canvas-back and Broad-bill, *i. e.*, from a battery, from points, or by toling. These methods will be referred to more in detail farther on. This species is quite abundant on the Pacific coast where it is found, during winter at least, associated with the flocks of Mallards, Broad-bills, Canvas-backs and other ducks so abundant there at that season.

Fuligula vallisneria.—Steph. Canvas-back Duck.

The Canvas-back is, without doubt, the most sought after and widely known of all our ducks, and in localities where it can obtain the food to which it owes the peculiarly delicate flavor for which it is so famous, its reputation for excellence is well deserved. When, however, it is obliged to content itself with a diet chiefly of animal food, it becomes merely a very ordinary table bird.

The Canvas-back is colored somewhat like the Red-head, but there is no reason for the confusion which exists in the minds of so many people between the two species. A careful comparison

of the descriptions of the two birds, will indicate well marked differences in shape and color, by which they may always be distinguished. The male of the present species has the head and neck of a deep chestnut color more or less obscured with dusky; colors of other parts like the preceding species but, *on the back the white predominates, and the black lines are faint and much broken up. The iris is red. Bill longer than head, narrow, high at base, nostrils median.* Length about twenty inches. To any one who compares specimens of the two birds, the differences will be very apparent, and we venture to say that no one who has done this will ever again mistake one species for the other.

The Canvas-back is distributed more or less abundantly throughout the whole of Northern America. In the interior it is found in winter as far south as New Orleans, but on the Atlantic coast probably does not proceed much south of Georgia. On the Pacific Slope it is abundant, extending its migrations in winter, nearly or quite as far as the southern boundary of the United States. In Southern California they are especially abundant on small lakes and pools, seeming to confine themselves entirely to fresh water, and only when disturbed and driven from such places, visiting the *esteros*, where the water is brackish. The summer home of this bird is in the far North, and it is said to breed in great numbers in Alaska.

Chesapeake Bay is the most noted ground for Canvas-backs in the country, and here until recently they were frightfully persecuted by means of sink boxes and swivel guns.

A few years ago, Canvas-backs showed a marked decline in numbers, and their absolute slaughter from these murderous engines, led to the enactment of stringent laws for their protection. Although they are but little used at present, a brief description of the sink-boat may interest the reader.

The sink-boat or battery was a long, narrow box, about large enough to contain a man and two or three guns. It was loaded with old iron, so that it could be sunk nearly flush with the water's edge. From stem, stern and sides floating wings projected, which, rising and falling with the waves, prevented the water from rushing into the battery. The unwieldy machine was usually towed to a place on the flats where the ducks congregated, and the shooter,

after loading his guns and placing them in the box, with their muzzles resting on the edge, lay down on his back in the bottom of the concern. Numerous decoys were anchored in the water around the battery, and some were even placed on its broad flats. Here, unseen by the ducks, unless they were immediately over him, and patiently gazing into the dim sky, the gunner eagerly listened for the rustling of wings or the splashes that denoted the settling of the doomed birds. Then, barely elevating his head above his prison-cell, he blazed away.

The swivel-gun, a huge blunderbuss-looking affair, secured in the bow of a boat, brought down whole flocks at a single discharge, and was another invention of the sportsman's enemy. Between this and the sink-box, ducks in the Chesapeake threatened to become as rare as buffalo will soon be in Kansas; but the good effects of their partial abolition are already visible in the increasing numbers of the birds.

Toling is also practiced here to a considerable extent and with success. A spot is selected where the bottom slopes off somewhat abruptly, for the birds will not approach near to the shore except by swimming, and when the water is too shoal to permit them to come within forty or fifty yards, the gunner can get no good chance to shoot at them.

Those who are not sportsmen are sometimes skeptical in regard to toling ducks, and even some duck shooters scarcely put credence in this device. Undoubtedly the plan of "toling ducks" was derived from the Indians, who imitated the fox. "In Norway and Sweden," says Mr. Lloyd, in his exhaustive work on the game birds and wild fowl of these countries, "ducks collect in large flocks in the neighboring lakes and rivers, the strands of which are in general flat. The fowler, on observing the birds, walks as near to them as he can in safety when, falling on his hands and knees, he makes his further approaches slowly and cautiously. In the mean time he causes his well-trained dog, who should be of a reddish color, to gambol before him, which he effects by every now and then throwing the animal a crumb of bread that it catches in its mouth. The ducks, attracted by the antics of the dog, gradually approach the strand, and thus the man is often enabled to get sufficiently near them to fire with effect." According to all accounts

it was from seeing the way in which the fox at times secures his prey that men were induced to adopt the plan spoken of, for that cunning animal in the autumn resorts to a similar ruse to capture young ducks. He then promenades near to the water's edge, sometimes vaulting high in the air, and at others crawling on his belly, his brush meanwhile trailing along the ground. These manœuvres of his so excite the curiosity and tickle the fancy of the ducklings that they gradually swim towards him, occasionally so near, it is said, as actually to seize hold of his tail with their bills; but they usually pay dear for their temerity, for the wily fellow seizes his opportunity, and pounces on one or other of them. "To the devices of the fox," says a Swedish gentleman, "I have been an eye witness, and it was only last autumn that my bailiff shot one of these animals in the very act of beguiling young ducks in the manner described." On the Chesapeake these birds are also shot in great numbers, from points or bars, near or over which they fly.

On the Potomac, when it freezes over, Canvas-backs are shot in considerable numbers on the open places in the river, spots where from one cause or another, ice has not formed. The decoys are set out in the open water, and the sportsman making a bed of blankets with a pillow of hay, and covering himself with a white sheet, waits for the birds. The ducks do not notice him, for he looks like a hummock of ice. The pillow raises the head so that the gunner is not obliged to make any movement until he rises to shoot. Large bags are often made in this way and the sport may continue all day, as the ducks fly from one open place to another almost continually.

The legitimate sportsmen upon the Potomac are much annoyed by pot hunters who, with swivel guns and from batteries, slaughter great numbers of ducks when they first arrive and render the survivors so wild that it is quite impossible to get near enough to shoot at them with a shoulder gun. Since the laws in reference to these engines of destruction have been so rigidly enforced on the Chesapeake, many of the market hunters from there have come to the Potomac, where they make great havoc among the birds.

Although the battery or sink boat has been already referred to, a more detailed description may not be out of place here. The

sink boat, or more properly box, is about six feet three inches long, one foot two inches deep, two feet wide at the top, one foot eight inches at the bottom. To this box is fastened a platform about twelve feet long and seven feet wide, and to this platform is fastened a frame covered with muslin, as follows: width at head, nine inches; width at sides, two feet. This box is carried to the shooting grounds by placing it on a boat, and is then anchored at head and foot, head towards the wind. The shooter then places his decoys at both sides and strings them towards the foot, so that the decoys will form a V shape, anchoring most of his decoys on the left, so that the ducks will come upon that side, as this is easiest shooting. After this is done, the shooter gets into the box and places weights in it, so that it will be sunk even to the water. He then lies down in the box, with his face to the leeward, so that he can see every dart made, and thus have an easy shot. When ducks are plenty this is a most destructive contrivance, as the ducks can see nothing until they get over the decoys, and then it is too late, for at this moment the shooter rises up and pours in his deadly fire. After the bunch of ducks have been shot at under these circumstances, they fly a long distance and do not alight within sight.

Fortunately the laws in Maryland and Virginia are so stringent that they are seldom violated except at a few places, and these places are such that it is impossible to capture the violators, as they are ever on the lookout. A severe law should be passed by Congress on this subject, and that speedily.

There are plenty of ducks, and good shooting can always be had at a very slight expense of time or trouble. This can be accomplished by the use of blinds. The blinds are made as follows. Select a place from a hundred to three hundred yards from shore, at a point where the water is from three to ten feet deep, and at good feeding grounds, if possible, then with a heavy hammer drive four posts at a distance of from four to six feet apart, forming a square. At a distance of about a foot above the highest tides, connect these posts with inch stuff, and upon this lay a flooring; about three feet above this flooring, fasten strips both on the outside and inside of these posts, and between these openings put in cedar or pine, so as to conceal completely all the woodwork; then at the end of the blind nearest to the shore make a seat, so

that when the shooter is seated his eyes will be just above the cedar, and he can have a full view in every direction. It is best to leave the rear end of the blind open, so that it will be easy to get in and out of it from a boat. Having your blind made, and wishing to shoot, your next step is to put out your decoys—a very simple thing when you understand it, but unless one has seen it done or had it explained to him, not so easy as it appears. It is true that no matter how you put them out, you may coax up a stray duck now and then, but you will soon perceive that there is some defect, for it will be noticed after a little, that almost all the ducks when they get within two or three hundred yards of your blind, either turn aside or keep on the course, and pay no attention to your decoys. Let us suppose that the wind is blowing from your right; in this case all the ducks will come up on your left or to the leeward, as all ducks when they alight come up against the wind. To your right, and at a distance of about thirty-five yards, and on a line parallel to the front of your blind, and at a distance of thirty-five yards from it, place a leader (decoy,) and from this point string your decoys on this parallel line, one each side of it towards your blind so as to form a V; when directly opposite your blind taper off your decoys, so that the space occupied by them will nearly resemble a diamond. It is best to have a good show directly opposite your blind, and it is well to leave several spaces, so that the ducks will select these points to alight in. If the decoys have been placed properly, your blind properly constructed, you will get a dart from every bunch of ducks that may pass up or down the river in a reasonable distance from you. Never allow the ducks to alight, but shoot them when they are hovering to alight, as at this time you have the best opportunity and your fire is the most destructive. If the flock is very large, they may be permitted to alight; but it is the safer rule never to allow them to do so, for as soon as they are in water they separate and commence to feed immediately, and shooting under these circumstances you will shoot some of your decoys, which indicates a bad sportsman. Nothing looks so badly to our mind as to see a person with his decoys filled with shot; and you can rely upon it that he seldom gets one-fourth of the game that he should. Very often when we place our decoys out it is a dead calm. In this case the water is as smooth as a

sheet of glass, and the decoys loom up to almost twice their usual size, as in a fog, and under these circumstances the ducks will readily discover the deception long before they come near to you, and will either turn out of their way or will pass by beyond gun shot. Under these circumstances we can easily change the prospects and have good shooting with but little trouble. To do this, select two or three of your largest and best decoys as follows:—say two on the outside and one in the centre of the decoys. To a loop in the breast of each decoy run a string, to one end attach a piece of lead, iron or stone, weighing say two pounds, then carry your strings to your blind, and as soon as you see a bunch of ducks pull these strings violently, and by doing this the decoys will act as if feeding; and not only this, but they will create waves that will give motion to all other decoys. By this means one may have good shooting even when it is quite calm.

The blinds are built in the fall just about the time at which the ducks arrive, so that the birds are accustomed to them from the first. Often too, the vicinity of the blind is "baited." To "bait" a blind, place from twenty-five to forty yards in front of each blind, two or three bushels of corn or grain, or screenings. Sooner or later a bunch of ducks will find this out, and will communicate it somehow or other to every duck for miles around. As soon as they find it, you can rest assured that the ducks will remain feeding on this grain until it is all gone, which will take a long time; but by once every two or three weeks putting out another bushel, you will have ducks until they leave for their breeding grounds. It is always best to put out corn at first, as the ducks notice this so much sooner, and after this bait with rye or wheat, which is more difficult for them to get. Now this shooting will be all right as long as the river does not freeze, or the ice is not over an inch or two thick. In this latter case you must break the ice in front of the blind, so as to have a space about forty or sixty yards square, and then by placing the decoys out you will have the best of shooting, as this will be the only water open in the vicinity, and by placing decoys in it you cannot fail to draw every bunch that may pass up or down. But in case the ice is from four to eight inches thick, and freezing all the time, you will have to resort to another method. In all freezes there are air holes open at some place or other

within a mile or two of our blind or of our house, and the question is how to get our boat there with its load of decoys. It may be mentioned here that in duck shooting none but a flat boat should be used, as this is the only one that can go in shallow water, be hauled on shore or transported without trouble in a wagon. In order conveniently to transport your boat over the ice, nail two thin strips (about an inch thick) on the bottom of the boat, as runners, and then thin them from the centre to each end, so as to form a sort of oval. To these runners fasten iron about an inch wide, and let this iron be what is termed half oval, (which can be procured at any hardware store). The runners should be as long as possible, and placed about three or four inches from the edge of the boat, and they should not be nearer than four inches to the end or point of the boat. With a boat fixed in this manner, the least force exerted will make it slide rapidly over the ice. In going with a boat on the ice from one place to another, never pull it with a rope by walking in front of the boat. This is the way that all novices will act, but it is dangerous, from the following reason, viz; that no matter how thick the ice may be, there are always some thin places, and these will give away as soon as one gets on them with his full weight; in such a case you will get a good ducking at the best, and run the risk of a more serious disaster. To avoid all these risks, you should push the boat from behind by placing your hands at the stern, and have your body thrown well forward; in this case, if the ice gives way, you can easily jump into the boat without risk, or at the most have only a wet foot.

It is still better to remain in the boat and to be provided with a short pole armed at the end with a sharp hook, which you can strike into the ice and by means of which the boat is easily moved over the surface. By sitting well forward in the boat and using this hook you can go along rapidly with very little exertion, and if the ice should give away you are safe in the boat. In case you break in, it is easy with an ice hook to pull your boat upon strong ice. On arriving at the place where you wish to shoot, you can either build a blind out of ice, or use the boat as a blind. In the former case, pile up cakes of ice about three feet high, building a semi-circular wall, and then by placing a few boards on the ice, or bags of straw, you have a comfortable shooting place. If the

boat is to be used as a blind, then all you have to do is to place it parallel to the line of decoys and place cakes of ice on the side of it next to the decoys, so as to make the boat look like a hummock of ice. But in this case, it is necessary to wear a long white shirt and have one's hat white by using a havelock. Then by sitting in the boat or on the ice, it is almost impossible for the ducks to see you, provided you keep quiet. A great many persons in shooting on ice whiten their gun barrels with chalk, as a black barrel is very apt to be noticed, but this is scarcely necessary, provided the shooter makes no sudden movement.

It is scarcely necessary to say that the shooting on the Chesapeake and adjacent waters is by no means confined entirely to Canvas-backs. Water fowl exist here not only in vast numbers but in the greatest variety. Swans, geese of several species, redheads, black ducks, broad-bills, widgeons, teal and many other species less prized by epicures, make these waters their winter home, and may be shot in quantities from October to April.

In the Western States the Canvas-back makes its appearance about the middle or last of October, and remains on the water of these States until freezing weather comes, when they withdraw to more southern localities or to the sea coast. In the interior they are chiefly shot over decoys which are placed on their feeding grounds, the sportsman being concealed in a blind near at hand. As the birds feed to a great extent on the roots of an aquatic plant, which does not grow in deep water, they often approach quite near to the shore and give very easy shots. On rainy days these birds appear to be uneasy, and fly much more than in pleasant weather. They come to decoys better, too, and it is on such days that the best bags are made. The Canvas-back can only be regarded as a straggler on our New England coast.

Bucephala clangula.—Coues. Golden-eye. Garrot. Whistler.

The Whistler, as it is most commonly called on our coast, is a bird of very wide distribution, being a European species, and found also throughout the whole of North America. Unlike the majority of our ducks, this species never congregates in very large flocks, and it is not much sought after by sportsmen. It is a fair table bird, much superior in this respect to the majority of

our sea ducks. It takes its common name from the fact that its wings when in flight produce a loud whistling noise which can be heard at a considerable distance.

In the interior and perhaps at some points on the coast, the Golden-eyes decoy readily, but this is not the case on our southern New England shore, where they rarely pay the slightest attention to the stools. This species is said to breed in hollow trees like the Wood Duck, the mother transporting her young to the water in her bill.

The male Whistler has the head and upper neck dark glossy green, a roundish spot of white just in front of the eye, not touching the bill; lower neck, under parts, sides, scapulars, wing coverts and secondaries white, other upper parts black or blackish. The female has the head brown, breast and sides grey. The head in the male is quite puffy, in the female less so. The bill is high at the base, shorter than the head, and in color is black, paler at the tip. Length about eighteen inches.

Bucephala islandica.—Baird. Rocky Mountain Garrot. Barrow's Golden-eye.

A rather doubtful species which closely resembles the foregoing, but has the loral spot triangular or crescentic touching the bill for the whole length of one of its sides, white on the wing, divided by a black bar. Somewhat larger than the last. This bird is everywhere rare, yet it has been taken on the Atlantic coast, in the Rocky Mountains, and on the Pacific. If a good species it is more boreal in its habitat than the common Golden-eye. It occurs with us only in winter.

Bucephala albeola.—Baird. Buffle-head. Dipper. Butter-ball. Spirit Duck. Devil Diver. Salt-water Teal.

Every one is familiar with the little Buffle-head, for he is common not only along the coast, but on all ponds and streams throughout the country, from ocean to ocean. The male is certainly one of the most beautiful of our ducks. His head is extremely puffy, and shows on its back the most brilliant iridescence of purple, green and gold. Colors like those of the Golden-eye, but without the loral patch of white, and with an auricular patch of that color which meets its fellow behind. The female has the

head less puffy, the auricular patch smaller, and is full black. Length about fourteen inches. This species sometimes comes well to decoys, but is so small that it is not much shot. Those that are killed are generally secured while flying over points or bars.

Harelda glacialis.—Leach. Long-tailed Duck. Old-wife. South-southerly. Old Injun (male). Old Squaw (female). Hound.

An extremely graceful and beautiful duck; one too, most difficult to shoot on account of its exceedingly rapid and irregular flight, but for the table almost worthless. Tail of fourteen narrow pointed feathers, the middle ones in the male very long, sometimes equaling the wing. Male in summer with back and long narrow scapulars varied with black and reddish brown; general color blackish below, from the breast white, no white on wing, sides of head lead grey. In winter, the head, neck and fore parts of the body are white, a dark patch on the neck below the grey cheek patch, narrow scapular feathers pearl grey. Bill short, nail occupying its whole tip. The female is a plain grey duck, white below, and always to be recognized by the absence of white on the wing, and the peculiarities of the bill. Length fifteen to twenty inches, depending somewhat on the development of the tail.

Old Squaws are shot in great numbers along the New England coast, not so much for food, as because from the peculiarities of their flight, they are one of the most difficult ducks to hit. Under certain circumstances they come well to decoys, and are easily secured, but they are more often shot while flying over a line. Ducking in line, is a favorite amusement on some parts of our coast, but it is hardly probable that the reader is familiar with it and it may therefore be here described.

A number of boats, perhaps twenty, each containing one man, one or more guns, together with an anchor, thirty feet of rope and a buoy, start for some pre-determined point of land near which the birds feed. The boats range themselves off from the shore about gun shot apart, forming a cordon through which the ducks are expected to fly. The anchor is attached first to the buoy, and this in turn is snapped to the painter. When a bird is shot down, the boat can in this way quickly slip the buoy, and save the time, and trouble of raising the anchor. The birds at sunrise fly into

the bays and estuaries for food, and in passing over the line give good shots to the gunners. As many as fifty birds are sometimes secured in this way by an expert, in a morning's shooting.

Although the Old Squaw is one of our typical sea ducks, it is not confined to the coast alone, but is found in considerable numbers on some of the larger inland waters, being common in winter on Lake Michigan, and no doubt on others of the Great Lakes. It occurs also in great numbers on the California coast.

This species breeds on fresh water ponds and lakes in Labrador, and probably throughout the British Possessions, generally, however, selecting for this purpose a body of water not far from the sea. It reaches our middle districts in November, and is enormously abundant from that time until April. Most of the common names of the species are taken from its noisy habits, for it is almost continually calling. The notes are very musical.

Camptolemus labradorius.—Gray. Labrador Duck. Pied Duck.

Bill enlarged toward the end. The male has the body and primaries black, as also a black collar and lengthwise coronal strip, rest of head neck and wing white. Female plain greyish. Length two feet. This species was in the time of Wilson and Audubon, common along our coast as far south as New York in winter, but it is at present one of the rarest of our ducks. It is a species of northern distribution, only entering the United States in winter.

Histrionicus torquatus.—Bon. Harlequin Duck. Lord (male). Lady (female).

This beautiful species is nowhere common. It is a bird of Europe, and is scattered over the whole of the northern portion of our country, occurring on the northwest coast in small numbers. It breeds sparingly in the northern Rocky Mountains, but perhaps it is as common on the coast of Newfoundland as anywhere else. Here the male and female of this species are called "lords and ladies," and are beautiful birds, and perhaps the most expert of divers. The sportsman is amazed to find that one of these birds can escape the shot of his percussion gun by diving, though sitting quietly on the water at a distance of but twenty yards. Sometimes,

too, he fires at a flock on the wing, and is delighted to see the whole flock drop apparently "stone dead" into the water; but presently his astonishment is great when he sees the little harlequins all on wing unhurt, and just out of the range of his second barrel. The bill of the Harlequin is very small and short, and tapers rapidly to tip which is wholly occupied by the nail; the tertiaries are curly. Male deep lead blue; sides of head and of body behind chestnut; stripe on crown and tail, black; a patch at side of bill, on occiput, side of breast and tail, two transverse ones on side of neck and several on wing, and a jugular collar, white. Female brown, paler below, with a white patch in front of and behind eye. Length about sixteen inches. Specimens of this beautiful duck are much in request among ornithological collectors, and those shot should always, if possible, be preserved.

Somateria stellerii.—Jard. Steller's Eider Duck.

"Head white with a tinge of grey with a green occipital band; a black chin patch and eye ring; collar round neck and the upper parts lustrous velvety black; the lengthened curly scapulars and tertiaries silvery white on the inner webs; the lesser and middle wing coverts white, the greater coverts and secondaries white-tipped, enclosing the violet speculum, under parts rich reddish brown, blackening on the belly and crissum, fading through buff to white on the breast and sides where there are black spots. Female reddish brown, blackening below, varied with darker on the head, neck and fore parts, tips of greater coverts and secondaries alone white, enclosing the speculum. Length about eighteen inches." (*Coues.*)

A bird of the Northwest coast scarcely or not at all known to sportsmen.

Somateria fischerii.—Coues. Spectacled Eider.

"Male black or blackish, the throat, most of the neck, fore back, wing coverts, scapulars, tertials, and flank patch white; nape and occiput green, a whitish space around the eye bounded by black. Female said to be brown varied with darker, the chin and throat whitish, the eye patch obscurely indicated." (*Coues.*) Male in fall and winter said to be like the female. Inhabits the northwest coast.

Somateria mollissima.—Bon. Eider Duck. Sea Duck.

"Bill with long club-shaped frontal processes extending in a line with the culmen, upon the sides of the forehead divided by a broad feathered interspace. Male in breeding attire, white, creamy tinted on breast and washed with green on head; under parts from breast, lower back, rump, tail, quills and large forked patch on the crown black. Female with the bill less developed, general plumage an extremely variable shade of reddish-brown or ochry brown, speckled, mottled and barred with darker. Male in certain stages resembling the female. Length about two feet." (*Coues.*)

The reputation of this bird is world-wide. And it is not from any peculiarity that it possesses, but because it ministers (unwillingly, to be sure) to the comfort of man. There are four species of this genus in the United States, but two of which are found upon the Atlantic coast. The king eider is the rarer of the two, and the most northern. Plain eider duck is the one most common, and the one referred to here. We naturally associate them with icebergs and Icelanders, as they form such prominent features in tales of Arctic adventure. 'Tis true vast numbers have their summer dwelling-place in the Polar regions, but even those who seek a breeding place in Greenland, Iceland or Labrador, seek a less rigorous climate as winter approaches. The range of the eider duck is from the coast of New England to the Arctic regions. It is only in winter, however, that we are favored with their presence, and then they keep well aloof from the shore. By the first of May they leave us, and seek a place to make their nest and rear their young along the shores of the Bay of Fundy, Newfoundland, and Labrador, though the first eggs are not laid till the last of that month.

One of their most southern breeding places is upon one of the outlying islands of the Grand Manan group, called "White Horse," from a fancied resemblance to that beast. From the rocks at the water's edge many tortuous, narrow paths lead to the grassy thickets, and these paths invariably lead to a nest, sometimes two. Upon the ground they place a few pieces of grass stalks, with other fine material, in a slight depression of which the eggs are laid, from three to five. These eggs are about three

inches long by two wide, of a beautiful olive green, and very smooth. Sometimes when left by the female for a short time, they are covered with a mat of dry grass, and the highly prized eider down, so elastic that a whole nest full may be squeezed in the fist and then regain its original bulk. This down is dark slate in color, having been plucked by the female from her breast. The young are beautiful little creatures, can swim like a fish and tame easily.

Towards the last of October, the eiders begin to appear along the Massachusetts coast, forming in large bodies off the rocky capes. Good sport is had by gunners from Cape Ann in the winter months. A good boat, with a man to sail it, can be hired at Rockport or Gloucester, and if the day is pleasant, with wind to westward, and a trifle rough, the sportsman may expect shooting. These birds are also shot in the same manner as the various Coots to be mentioned farther on.

Somateria V-nigra.—Gray. Pacific Eider.

Precisely like the last excepting a V shaped black mark on the chin. Perhaps only a variety. Arctic and North Pacific coast.

Somateria spectabilis.—Boie. King Duck. King Eider.

"Bill with broad squarish nearly vertical frontal processes bulging angularly out of line with culmen. Male in breeding attire black, including a forked chin patch, a frontal band and small space, round eye; the neck and fore parts of the body, part of interscapulars of wing coverts and of lining of wings, and a flush-patch white, creamy on the jugulum, greenish on the sides of the head; crown and nape fine bluish ash. Female resembles the common Eider in plumage, but the bill is different. Size of last." (*Coues.*)

A more northern species than the preceding, with which however it is sometimes associated. South in winter on the coast to New York and occasionally inland waters west to Lake Michigan.

Œdemia americana.—Swain. Black Scoter. Copper-Nose (male). Grey Coot (female).

Birds of this genus are distinguished by their peculiarly swollen and brightly colored bills. The males are black with or without

white spaces, the females are sooty black or grey, and lack the curiously turgid bills of the male.

In the Scoter the bill is scarcely encroached upon by the frontal feathers, is shorter than head, swollen above at the base, and orange in color in the male. Tail of sixteen feathers. Male black. Female sooty brown, pale grey below. Male about two feet long. Sea coast and larger inland waters of United States in winter.

Œdemia fusca.—Flem. Velvet Scoter. White-winged Surf-Duck. White-winged Coot. Bell-tongue Coot.

Bill black orange tipped, shorter than head. Male black with a white wing-patch and spot under the eye. Iris white. Female sooty brown, pale grey below, with the white wing-patch and some white about the head. Length two feet. Distribution same as last, but more abundant.

Œdemia perspicillata.—Steph. Surf Duck. Sea Coot. Skunk-head. Snuff-taker.

Bill in the male much swollen at sides as well as above, orange red, white on sides and with a large circular black spot on each side at the base. Tail of fourteen feathers. Male black with a triangular white patch on the forehead and another on the occiput. Female smaller, sooty brown, paler below, white patches on sides of head before and behind the eye. Size of first. Atlantic coast in winter. Variety *trowbridges*, Pacific Coast.

Our Sound, protected by Long Island from the billows and fierce breakers of the Atlantic, with its many quiet bays and inlets, its gently sloping, sandy shores and shallow waters, abounding in mollusca and small shell fish, is the favorite resort of countless numbers of water-fowl, from their first arrival from the northern breeding grounds, about the middle of September, until their departure again in April and May. The first species which arrives here in the early autumn are the Surf Ducks—a beautiful bird, glossy black, with a white patch on the top of the head and another on the nape of the neck, from which coloring it has received the name of "skunk head" from our gunners. Its mate, dressed in a sober suit of brown and grey, is called the grey coot, and is very generally considered an entirely different species. The ducks of this species which first arrive keep far out on the Sound.

and are daily joined by large flocks of their companions from the north. In a few days these flocks become of immense size, consisting of thousands, which are now joined by a few Scoters. The duck shooters begin to prepare for the sport. The boat ordinarily used in this duck-shooting is flat-bottomed, twelve to thirteen feet long and about thirty inches wide, decked over, and with a combing around the cockpit, which is just large enough to accommodate one person. The white-winged coots and loons soon commence to arrive and mingle with the others, which have now moved nearer to the shore. Every morning these large flocks scatter, and in small numbers, from two or three to a dozen individuals, fly up the Sound toward the west. They continue to fly in the same direction until about ten or eleven o'clock; all then settle, and scarcely any birds are flying until two o'clock in the afternoon, when all commence flying back again, the flocks being larger than in the morning flight.

Imagine a party of sportsmen just formed for the first shoot of the season. The boats are all collected on the shore near some favorite shooting ground, ready to start out the next morning at the very first streak of daylight.

The party retire to some neighboring barn and beguile the long hours of the night with stories and joyous thoughts of to-morrow's sport; or, at home, roll uneasily in bed, longing for the next morning. No bell is needed to call them at the first signs of day. Many eyes have been eagerly watching for it. The boats now start out, so that all may be ready before it is light and the birds have begun to fly. Upon reaching the desired location, one man throws out his anchor, another rows about twenty rods beyond him and anchors also, and in this way the boats are all disposed of, reaching far out into the Sound in a straight line. Golden streaks are fast springing up from the eastern horizon, lighting up the water, which is moving in long gentle swells, and the beautiful bluish haze, so characteristic of the cool autumn morning, with enchanting reflections. The ducks are now beginning to fly, and the noise of their wings, brought clearly over the water, sends a thrill through every gunner's nerves. The shooting will soon begin. There comes a pair of white-winged ducks, heading directly for the line. They must pass between some two boats, and every eye anxiously

watches to see who shall have the first shot of the season. Nearer and nearer they come; they are almost up to the line, and now they notice the boats and partly stop, but it is too late for them to turn out. With swiftly moving wings, and with wonderful speed, one following about a foot behind the other, they attempt to pass between two of the boats. A man springs to his knees, the muzzle of a gun follows their swift course for an instant, a flash, a report, and a few feathers float in the air as the hindmost duck throws out its feet, drops its head, and with wings partly closed, turning slowly over in its swift descent, heavily strikes the water with a loud splash. The gunner now throws overboard the buoy to which his anchor line is attached, rows to the spot where the duck is lying dead on its back, lifts it up by one of its red feet, places it on the deck, and rows back. This is the first duck. And now the ducks are flying swiftly through different parts of the line, and the report of the heavy guns is heard almost every instant. Now and then some lucky fellow drops two at a shot. Many which are hit come down apparently dead, dive immediately on striking the water, and continue diving so vigorously that they often escape, the gunner not deeming it worth while to pursue them. Others which dive are never seen again. These are hard hit, and as a general thing cling to the weeds and rocks at the bottom with their bills and remain there till dead. If the bottom offers nothing to cling to they swim off with the body completely submerged, leaving nothing but the bill above the water. Sometimes after the warmth has all left the body of those which cling to the bottom, the muscles relax their hold sufficiently to let the bird float to the top of the water. Very frequently when a passing duck is shot at, the shot are plainly heard to hit it, but the bird keeps on as though nothing was the matter. Very soon, however, it moves its wings more stiffly, and inclines toward the water. This is a sure sign of a hard hit, and if it alights all right it can be easily knocked over with the other barrel. If the duck, on reaching the water, does not seem at all particular whether it alights right side up or not, it will be found dead, though having flown perhaps for a quarter of a mile after being hit.

As the season advances, old squaws and sheldrakes arrive. The former are often allowed to pass through the line without be-

ing shot at, on account of their small size, swift flight, and extreme tenacity of life, making it so hard to get them after they are shot. As a general thing, however, everything is "game" which passes over the line, from a goose to a crow.

Erismatura rubida.—Bon. Ruddy Duck.

Male with the neck and upper parts brownish-red, the lower parts silky white marbled with pale grey, chin and sides of head white, crown and nape black. This is the most perfect plumage, and is not often seen. Female and young males brown above, dotted and waved with darker, below paler. Top of head dark, brown, under tail coverts white. Bill broad and flat with an overhanging nail. Feathers of tail peculiarly stiffened and slender. Length fifteen inches. North America, abundant.

Erismatura dominica.—Eyt. St. Domingo Duck.

Head in front and chin black. Hind head, neck and breast deep reddish-brown; above brownish-red blotched with black, below paler, speculum white. Smaller than last. A tropical species accidental in the United States.

Mergus merganser.—Linn. Merganser. Goosander. Fish Duck.

The Mergansers are to be distinguished from other *Fuligulinæ* by having the bill round instead of flattened, and strongly toothed. Their food consists almostly entirely of fish which they pursue "like the loons and cormorants." Their flesh is of course very rank, almost uneatable in fact. These birds are not systematically pursued, but are occasionally shot by the gunner while in pursuit of other game.

The male Goosander has the head somewhat puffy, glossy green, back and wings black and white, under parts salmon colored. Female with a slight crest, head and neck reddish-brown, upper parts ashy grey with some white. Length about two feet. Whole of North America.

Mergus serrator.—Linn. Sheldrake. Red-breasted Merganser.

With a slight crest in both sexes. General coloration like the last, but the male with the lower fore-neck and breast reddish

brown streaked with black, and the sides waved with black, a white, black bordered mark in front of the wing; wing crossed by two black bars; smaller than *merganser*. Distribution same as last.

Mergus cucullatus.—Linn. Hooded Merganser. Saw-billed Diver.

Male with a thick erect crest. Black including two crescents in front of wing, and bar across speculum; under parts, centre of crest, speculum, stripes on tertials, white; sides chestnut, black-barred. Length eighteen inches. Female, head and neck brown, chin whitish; back and sides dark brown; white on wing tip. North America at large.

MISCELLANEOUS BIRDS.

GAME in the sense in which the term is employed by sportsmen, strictly includes only those birds which have already been discussed; but besides these there are many other species at which the gunner will have shots during his wanderings in search of the true game birds. Among such may be mentioned the Wild Pigeon, the Bittern, the Sandhill and Whooping Cranes, and certain Loons, Grebes and Cormorants. Except the last three, the birds are all eaten, though not particularly delicate food. The Loons and their allies, however, are from the nature of their food, which consists almost wholly of fish, utterly rank and uneatable, and no more deserve a place in this work than does the crow, at which the sportsman sometimes wantonly discharges his gun.

In New England the following recipe is given for cooking one of these fish-eating birds. Having dressed your Loon or Grebe, place in it an iron wedge large enough almost to fill the cavity from which the intestines have been removed; then bake or boil. When you can stick a fork into the wedge your bird is ready for the table.

Ectopistes migratorius.—Swains. Wild Pigeon. Passenger Pigeon.

The Wild Pigeon is one of our most widely known birds, and although not strictly to be classed among our game birds, yet it is so extensively hunted and shot, and forms so marked a feature in our markets at certain seasons, that we shall devote a few words to the species. The color of the adult Passenger Pigeon is above, dull bluish grey; below, dull purplish red, whitening on the crissum; sides of neck golden and reddish reflections; some of the wing coverts black spotted; middle tail feathers bluish black, the others white or ashy, tail cuneate, the inner webs of the tail feathers black at base, with a chestnut patch. Length fifteen to seven-

teen inches. The Passenger Pigeon is eminently a gregarious and migratory species, known particularly for its great swiftness of flight, and the immense size of the companies found feeding together. Their favorite food seems to be beech mast, acorns and other soft shelled nuts, and where these are plenty, the pigeons congregate at early morning and feed during the day, retiring to the pine woods to pass the night. Their roosts when discovered are resorted to at night by men and boys, armed with guns and clubs, and the birds who sit packed tightly together are slaughtered in countless numbers, till all the hunters loaded down with their grain bags full of the birds, cease their murderous onslaughts from sheer fatigue.

Until disturbed the birds return nightly to the same roost as long as the mast in the neighborhood is plenty. Suddenly they all disappear, and are seen no more until the following fall. The wild cherries are, while they last, eagerly sought by the pigeons, and large bags are made by sitting beneath these trees and shooting at the incoming flocks.

At this season of the year the Alleghany Mountains are literally alive with them, and from morn to eve, nothing in the best localities can be heard but the sharp crack of rifles and the heavier sound of shot guns. Every one seems to be impressed with the idea that he must make the finest bag of the season, and consequently every one who can procure a gun, no matter of what kind, sallies forth to wage an indiscriminate war upon the poor pigeons that have visited the hills and valleys to feed upon the acorns and wild cherries which are found in the greatest profusion on the top of the Alleghanies in a strip of country called the Glades. These Glades are open spaces devoid of trees in the midst of unbroken forests covered by tall grass and alder bushes; they extend for perhaps fifty miles on top of the mountains, and are from fifteen to twenty miles in breadth. This section of the country seems to be the favorite ground for pigeons in the fall of the year. At early morning to sit in these glades and shoot at the flocks as one by one they arrive from their nesting places affords fine sport, and is altogether the most pleasant way of hunting these birds.

Thousands are caught alive by means of clap-nets, and they

afford the best trap shooting, being strong and swift of wing. This is the only use made of them alive, although attempts have been made in domesticating and cross-breeding, but with, as we believe, no success. The great mass of Passenger Pigeons breed in companies, twenty to thirty nests being found on one tree; when the squabs are about to leave the nest they make a delicious table bird. Scattered pairs are found breeding in our Eastern and Middle sections. Several other species of pigeons are found in the United States, but this is the only species which is systematically pursued.

Botaurus minor.—Bon. Bittern. Indian Hen. Stake-driver. Bog-bull.

The Bittern is very nearly, if not quite, a game bird. Its flesh is very fair eating, it gives out a strong scent, and often lies well to a dog. Frank Forrester included it among the list of his game birds, and what higher authority can we have than his. We have shot many of these birds when traversing boggy meadows in search of snipe, and have seen a very young and unbroken dog stand on them with the utmost staunchness. They fly slowly and are secured without difficulty by the most ordinary shot. Many are killed during the Rail shooting, being started from their reedy feeding grounds by the sportsman's boat.

The Bittern is above of a dull brown color streaked and speckled with tawny buff and whitish, neck white becoming pale yellow on breast and belly, each feather with a streak of brown. Chin and throat line white; a glossy black patch on each side of the neck. Bill dark at tip, yellow at base, legs greenish. Length about twenty-five inches. The Bittern nests on the ground and not in communities as do most herons. Its eggs are four or five in number, in color brownish-drab with a shade of grey.

Grus americana.—Temm. White Crane. Whooping Crane.

The Whooping Crane is a bird of the interior, being rarely found on our Eastern seaboard, and never north of the Middle States. It is most abundant in the Mississippi Valley and on the high plains toward the Rocky Mountains.

Birds of this genus have the general aspect of the herons, though in fact more nearly related to the rails. Adults of our two species may be distinguished from any of the birds of North

America by having the top of the head in each naked, somewhat warty, haired and red in color.

The length of the White Crane is between four and five feet. The bare part of the head narrows to a point on the occiput, and extends on each side of the head below the eyes. It is very hairy. General plumage white; primaries, their coverts and alula black; bill very powerful, greenish in color; legs black.

This species is rarely secured with the shot-gun. It is very wary, and must be stalked with the utmost care; and shot with a rifle-ball at a distance of one hundred yards or more. The White Crane breeds sparingly throughout the northern portion of the interior. The eggs are two in number, of a muddy white color with spots of dull brown. They are not to be certainly distinguished from those of the next species.

Grus canadensis.—Temm. Sandhill Crane. Brown Crane.

Somewhat smaller than the foregoing; the naked patch on the head forking behind to receive a feathered point, not extending below to the eyes, and scarcely hairy. General color grey, primaries, their coverts, and alula black.

This species is very abundant from the Mississippi Valley westward, and is equally common on the plains and in the mountains. Farther east it rarely occurs in any numbers, and is scarcely found at all on the sea coast north of Florida. In California it is abundant in the fall, and is often exposed for sale in the markets.

Although scarcely less wary than its congener the Whooping Crane, it is more often killed on account of its greater abundance. Sometimes they are shot by grouse shooters who come upon them feeding in sloughs or under cut banks, and thus get within range before being discovered. But as a rule the securing of these birds is purely a matter of chance. The young of this species are said to be tender and well flavored. The Sandhill Crane breeds throughout the mountains and plains of the West, laying two eggs usually on the ground, but sometimes building on a tree, as noted by the writer in the Black Hills of Dakota, in 1874.

GAME FISH OF NORTH AMERICA.

EASTERN COAST FISHES.

THE PLEURONECTIDÆ.

FLOUNDER; flatfish; mud dab; sole.—*Pseudopleuronectes americanus.*—Gill.

THIS excellent panfish is the delight of the boys, and is caught with clams and other baits of shell fish, from wharves. It is also speared on mud flats among the eel grass at low water. It often grows to several pounds in weight. Taken from early spring till late in autumn.

THE GADIDÆ.

POLLOCK.—*Pollachius carbonarius.*—Bon.

Pollock, although no more a game fish, technically, than the common flounder, has been known to take a great gaudy fly of scarlet and grey feathers with avidity; and much sport is often enjoyed in the Kenebeccasis River with rod and reel in this way. The Kenebeccasis is an arm of the St. John River, in the Province of New Brunswick. Its game qualities are really very fair. Belongs to the *Gadidæ* or Codfish family. Spawns from last of October to December, and is taken from the last of April to the first of June. It resembles the codfish in its prominent characteristics.

The *Haddock*, another *gadus*, takes the hook as freely as the cod.

CODFISH.—*Gadus morrhua.*—Linn.

This well-known fish of commerce affords good sport when taken in shoal water off the coast of Labrador. It is taken only a few feet below the surface, and if one wishes to try the experi-

ment he may be able to take individuals on a clumsy bunch of grey and scarlet feathers, or red flannel, improvised as a fly. Sometimes in pursuit of caplin and other small fish, they leap clear of the water. Bait with caplin, lance or herring. Bank fishing involves more hard labor than sport, yet some persons enjoy a cruise with the fishermen. Codfish subsist on crabs, shell fish and other fish. Spawn in November and December. The best fishing season is in April, May and June.

TOMCOD; frostfish.—*Microgadus tomcodus.*—Gill.

This familiar fish is taken in abundance from wharves and in tide water rivers, with hook and line baited with clams or crabs, a light rod, and small sinker, with or without a float. In midwinter it swims near the surface, and can be jigged up with an unbaited hook fastened to a two-foot No. 8 wire attached to a ten-foot pole. The bait-fishing season is in the fall. The tomcod is olive-brown on back shading to dull yellow; belly white. In shape and many of its features it resembles the codfish.

LABRIDÆ.

BLACKFISH; tautog.—*Tautoga onitis.*—Gth'r.

This is a fine fish for the table, broiled or for chowder. Grows to the weight of twelve pounds. Much fished for in May and October with hand lines and hooks, and baited with fiddlers and clams, with sinker below the hooks. Taken near the bottom, around reefs and old wrecks on the flood tide. Color, black on back with lead colored belly. Spawn in June.

CUNNER; bergall; chogset; bluefish; blue perch.—*Tautogolabrus adspersus.*

Cunners are very common on blackfish (tautog) grounds, and although a fine table fish and a bold biter, are not esteemed by anglers, who are incessantly annoyed by it while fishing for better fish. It takes fiddlers or sand crabs, clams, and cut fish bait, which it will nibble from the hooks as fast as put on. They are found on reefs and around old wrecks. Generally very small, but are taken over a pound in weight. They are quite bony, and their

spines are very sharp, inflicting painful wounds to the hands if caution is not used. Color, bluish green on back, belly whitish.

THE SCOMBRIDÆ.

MACKEREL.—*Scomber scombrus.*—Linn.

This favorite fish of commerce which is taken in such vast quantities along the northern coast, from Cape Cod to Labrador, affords most excellent sport to the rod and reel. Bass tackle of the lightest description, with wire gimp snood is required. Caplin, porgy, and clams are used for bait. No float is necessary, since, when the fish are biting sharply, the bait will be taken the instant it touches the water. We have known mackerel to afford fine sport to the large white fly or spinner, known as "Brook's silver laurel."

Fishing is done from boats or the decks of vessels. Those regularly engaged in the business use a jig or hook loaded with lead or block tin, and the fish when biting well, take the line with equal avidity, whether baited or not. They are generally caught at from five to eight feet below the surface. The mackerel business commences in the latter part of March, when the mackerel first return to our coasts from their winter's absence in more southern waters, and lasts until the end of November. In December, when the fish strike Cape Cod on their way south, they take a slant out into the deep ocean, and do not continue to follow the coast line; hence all efforts to take them after the period named have thus far proved futile. Like all pelagic fish, which make their advent in northern waters in spring, they are lean and extremely ravenous at that season. They seem to reverse the peculiarities of anadromous fish, which come to their fresh water and spawning grounds in fine condition, and return lean and impoverished, to gather fresh food and fresh strength for their next period of reproduction; and, reasoning by analogy, we may infer that these pelagi go to great depths to spawn, where no food is obtainable, and the minnow and sprat never go.

Mackerel generally swim in immense schools, sufficient in number and quantity, if all were caught, to fill a hundred fishing vessels, and biting generally the best in dull cloudy weather.

There is no species of commercial fishing which brings so much sport and excitement to the fisherman, and quite likely no vacation would be more enjoyed by the novice than one passed on a cruise for mackerel.

The beauty of this fish is widely known. Its body is long and slender, and its lines are like those of a yacht; tail forked, color dark greenish blue on the back; sides steel blue, marked the whole length by oblique blue-black bars, belly silvery white. The mackerel is one of the most beautiful fish that swims, and one of those most esteemed for the table.

BONITO OR SKIP-JACK.—*Sarda pelamys.*—CUV.

This is one of the scombridæ or mackerel family, and is often taken by trolling in deep water outside the bars and inlets. It spawns about June. It is not highly prized for the table, although it is a good marketable fish. It has the tail of a mackerel, but is a much thicker fish in proportion to its length, and is much more brilliant in its colors, the back being a vivid green that merges into an equally vivid blue upon the sides. Its upper part is marked with five decided black longitudinal stripes. Its belly is white. Average weight, one pound and a half.

SPANISH MACKEREL.—*Cybium maculatum.*—CUV.

This fish makes its appearance in northern waters along the coast in June, and is taken often as late as the first of December. It is taken by trolling squids in bays, sounds, and estuaries, and also in the open ocean. Its weight often reaches twelve pounds. It is highly esteemed for the table. Few fish are more beautiful. Its back and sides, down to its lateral line, are dark blue tinged with purple and gold; below the line it is pink and gold for a short distance, shading to white on the belly. Spots of gold of the size of a gold dollar are scattered over the body to the number of twenty or thirty. Sometimes it is taken with hook baited with shedder crabs, while angling for striped bass. The best trolling squids are made either of Britannia metal, tapering, with a tail of red ibis feathers, or of brightly polished metal inlaid with pearl, to represent the sea shiner.

ALBICORE ; Horse Mackerel. The American Tunny.—*Orcynus secundidorsalis.*—Gill.

This fish takes the hook freely, and is good for the table, selling at ten cents a pound from the smacks, but as he weighs from five hundred to twelve hundred pounds, will not be sought by anglers.

CERO.—cerus sierra ; black spotted Spanish mackerel ; kingfish.—*Cybium regale.* —Cuv.

This belongs to the family *scombridæ* (mackerel), and is highly esteemed for the table. It is white-meated, and ranges in weight from four to twelve pounds ; is a more slender fish than any of his kindred, an individual three feet in length often weighing no more than six or eight pounds. They are taken with common Britannia metal squids while trolling for bluefish, and being at all times a ravenous biter, may possibly be taken with the rod. It is comparatively a new comer on the coast from Virginia to Rhode Island.

The Cero is of dull blue or lead color on the back and sides, which are plentifully spotted with black dots ; belly white. It has no perceptible scales. Spawns in the spring.

THE SCIÆNIDÆ.

WEAKFISH.—Squeteague, suckermang or squit (New England) ; yellow-fin, shecutts, checutts, or chickwick (New York) ; bluefish, (Beasley's Point, New Jersey).—*Cynoscion regalis.*—Gill.

This fish is marked by gorgeous spots upon a ground of blue and silver, and by red and yellow fins, which are characteristic of the fresh water trout, and have undoubtedly given to it the name of "trout" in some sections. Ordinarily it is caught by hand-lines fished from a boat. These weakfish come in with the tide in immense shoals, following the small fry upon which they and their congeners feed, and are caught by the boat-load at half-flood within a few feet of the surface. Bait with a shrimp or shedder, and keep the line constantly in motion, and half the time you will "jig" them in the belly, tail or side, as the finny mass moves over the hook. Down at the "Narrows" of New York Bay, near Fort Richmond, is a favorite place. In New Haven harbor, and other harbors of the Sound, and especially in the vicin-

ity of Montauk Point, Long Island, they are taken in great numbers. However, no one but market-fishermen and novices take weakfish in this way. Anglers prefer to fish with rods and finer tackle in deeper water along the edges of channels and tide-races, where the rock or shifting sands form shelves and ledges to which the small fry gather for safety, and where bits of organic matter are drifted by the tide and deposited. A light bluefish squid kept just clear of the bottom is used. Here the weakfish run singly and much larger in size—four times the weight of those "schooling"—coming along under the still water of the ledges where their prey is huddled, and gulping down large masses at a mouthful. These big fellows are designated as "tide-runners." They weigh about four pounds, and pull well in a five-knot current.

But there is another mode, still, of taking weakfish, of which, verily, many an old fisherman wotteth not. Attention, all! Take a "cat-rigged" boat, a craft with a mainsail only and mast stepped well forward, one that works quickly, for quick work is required, and go to Fire Island Inlet at half ebb. At half ebb, or when the tide is running out like a mill-tail, is the only time to take them. Should you attempt the experiment on the flood, you would lose your boat and your life. Let there be a stiff quartering breeze, and now with a steady helm and a good rap full, bear right down on the beach, mounting the very crest of the waves that in ten seconds more will break into shivers on the sand. Keep a quick eye, a steady nerve, and a ready hand. You will take the edge of the swift current where it pours out of the inlet. Fear not the mounting "combers" or the breaking foam, the tide will bear you back and keep you off the shingle. Right here at the mouth of the inlet the action of the tide is constantly washing out the sand, and as it is borne down on the current, it presently sinks by its own specific gravity, and gradually piles up until it forms a little ledge a foot high or more, just as the driving snow in winter is borne over the crest of a drift until it forms a counter-scarp, with an apron hanging over the abrupt and perpendicular verge. Right under the edge of this ledge the small fry congregate, and the "tide-runners" forage for food. Here throw your "squid." Just now is the critical instant. In two seconds you will either be pounding on the beach or surging down on the impetuous current of the

strong ebb tide. The breeze is blowing fresh. Up mounts your boat on the glassy billow, whose crest is foaming just two rods in front. A false move now is ruinous. Ready about, hard down your helm! *Now!* while she shakes, toss in your "squid" into the deep green brine. There, you have him. Keep her away and haul in lively. Hurrah! a four-pounder. Lift him over the rail easy; belay your sheet there—steady! Whish! away we go, with wind and tide fair, and a seven knot current, and in a jiffy are swept many rods off from the land, and ready to repeat the manœuvre again. Clear away your line, come about, and charge up to the beach once more. What can be more exciting? Here we have all the attractions and excitement of yachting and fishing combined, with every sense on the alert, and every nerve tautened to fullest tension. Who will dare turn up his nose in contempt of weakfishing.

The weakfish is also taken with squid in the surf at Montauk, Newport and elsewhere, and affords the most exciting sport—the angler, often standing waist deep in the breakers, throwing his squid to incredible distances by practice, and dragging the fish by main strength to *terra firma* when he has struck. The best season for angling is from the middle of June until the first of September.

LAFAYETTE; goody (Cape May); chub (Norfork); roach (Virginia); *Liostomus obiqluus*.—De Kay.

This is a fair biter and a tolerably good fish for the table. A very beautiful fish in form and markings, taken in Hudson River and all along shore. (See Southern Coast Fishes.)

KINGFISH; whiting; hake or barb (New Jersey); *Menticirrus nebulosus*.—Gill.

Genio C. Scott, whom the writer has accompanied on many angling excursions, says in his book entitled "Fishing in American Waters":

"By many anglers this fish is regarded the best water-game of the estuaries. Its small and hard mouth is bordered with a gristly rim that is peculiarly adapted to holding a small hook. In the waters about New York the fish are not numerous, nor are the members of the limited shoals of large size, running only from a

half to two pounds each off Communipaw, Kill Von Kull, and Newark Bay; but at the south end of Staten Island, in Amboy Bay, and where it merges into the lower bay of New York, near Freeport, and in Jamaica Bay, near Barren Island, they sometimes run as heavy as five pounds. All along the South Bay and the New Jersey shore and inlets this delectable fish is taken in greater or less numbers in fykes, seines, pounds, and with the hand-line, while they yield tithe to sportsmen with rod and reel.

The meat of the Kingfish laminates in flakes of very close texture. It is a very heavy fish for its size. Though eminently a breakfast fish, yet for a chowder the epicure prefers it to sea bass or cod, the acknowledged chowder fishes. The color of the fish is grey, with irregular marks nearly black. It is covered with fine rigid scales which extend over the head. The first dorsal fin is spinous, and all of the other fins are soft-rayed. The fish possesses great propulsive power, as indicated by its fins, so that a three-pounder at the remote end of a line, with delicate bass rod, generally induces the novice to believe the strength, speed, and endurance of the fish under-estimated. "Gently, but firmly," are the words in playing a kingfish, which some denominate "barb," because a short adipose barb shoots out beneath its lower jaw; but it bears no resemblance to the barbel family. It spawns in spring time, as most white-meated fishes do; and though rather solitary in its habits, it remains in our estuaries and small bays along the coast from May until November. August and September are the best months to angle for it.

The rod is the common three-jointed bass rod from eight to ten feet in length. Pivot, multiplying reel of german silver or brass, large enough to carry from four to six hundred feet of fine linen line; a strong small hook, either the Virginia or Sproat's bend, made of finely tempered cast steel, and needle-pointed; a short bend and low point is required, because the mouth is very small, and a hook of large wire in proportion to the size of the bend is necessary because of the great strength of the fish; tracing sinker of size graduated to the strength of the tide; hence a combination sinker is best, because its ponderosity may be increased or diminished without untying the line; a brass swivel, to one end of which the line is attached, and to the other the leader, which is three-

fourths of a yard in length, and the snell to which the hook is fastened is looped to the leader; both leader and snell, (or snood,) are double silkworm gut.

The play of a kingfish is peculiar, though like the striped bass, he takes the bait without hesitation and starts away, and when he feels the prick of the hook, accelerates his speed, swimming low, and making a very long and strong run. If you have never taken one, you will be puzzled with his persistence in keeping down and running deep, and your surprise will not be diminished when he finally breaks water a hundred yards from the boat; and you will wonder, after landing a fish which has taken you nearly half an hour to kill, that it weighs scarcely three pounds.

The kingfish shoals on a clean sandy bottom, feeds on crustacea, and prefers shrimp, shedder, and soft shell crabs and lobsters.

Anchor off Barren Island to the north of the edge of the channel, and expect sport. Anchor east of Cheesequick Creek on the border of the channel between there and Freeport, and in August and September you cannot fail of obtaining rapturous sport. Caving Channel, a sandy bottom tideway from Communipaw to Jersey City, is said to be a favorite run for small kingfish, where good sport is often realized on the first of the flood. Kingfish feed also at numerous places in the South Bay, and all along the coast of New Jersey."

THE SPARIDÆ.

SHEEPSHEAD; *Archosargus probatocephalus*.—Gill.

This splendid table fish affords the angler much sport. It makes its first appearance about the bays and estuaries on the first of June, and remains until the middle of September. Its average weight is perhaps ten pounds, though its maximum may be twenty. They are taken in greatest numbers along mussel shoals and beds where they go to feed, and around old wrecks. In color it is dusky grey on back and sides, whitening toward the belly, and is marked by several black or dark brown bands on the side. The upper part of its mouth is paved with round teeth like polished cobblestones, while its jaw in front is armed with eight sharp incisors. This armature is most efficient for cracking clams

and other shell fish, while it renders the strongest kind of hooks necessary for the angler. These should be Chestertown or Virginia hooks bent on a gimp-wire leader with double swivel. A heavy sinker is required, which will rest on the bottom, and the leader should be doubled so that one hook will be above the other and both above the sinker, having free play with the tide, and sensitive to the slightest nibble. Use a heavy nine feet rod of bamboo with reel to suit. Fifty yards of line will be sufficient except when the tide runs furiously, and then one can hardly have too long a line or too heavy a sinker. The best tide to fish in is during high and low tides, when the water is slack; and for one hour after it begins to run. Along the shores of New Jersey they are numerous from May to October.

PORGY; scuppaug; scup (Vineyard Sound); bream (Rhode Island).—*Stenotomus argyrops*.—Gill.

A good pan fish; in season from May to October; most abundant in June. Weight, three-fourths of a pound to three pounds. Taken near the bottom. They are said to prefer deep clear water with rocky bottom. In angling for porgies use light tackle with cork float and small sinker; fine line and an eleven feet rod. Clams and shrimp are good bait, as well as squid and crabs. Many fish with drop lines from an anchored boat.

The first run of porgies takes place about the beginning of May, although we have seen them taken a week earlier; and consists of large breeding fish weighing from two to four pounds, and measuring up to eighteen or more inches in length. The spawn is quite well-developed at that time, though the precise time or place of depositing the eggs is not known. It is probable that this occurs early in June, since the schools are said to break up and scatter about the middle of that month. It is thought that the spawning takes place in the eel grass which covers the shoal waters of Narraganset Bay and Vineyard Sound. Throughout the summer young fish are seen floating around in the eel grass and over the sandy bottoms. Two later runs of fish occur after the first run each about ten days apart, but of smaller fish.

THE SERRANIDÆ.

SEA BASS.—Black sea bass, (New York); black perch, (Mass.); blackfish, (New Jersey); bluefish, (Newport); black hurry; purmalids, (New York, De Kay); black crill, (eastern shore of Virginia).—*Centropristis atrarius*.—Barn.

Color bluish black in the males, and dingy brown in the females. They are found inshore on reefs and mussel-beds, and are usually caught in company with the blackfish, though at certain seasons they are quite abundant on shoals and banks along our northern and eastern coasts. They vary in size from three-fourths of a pound to twelve, and are considered fine for boiling and for chowders.

Although the sea bass is a bottom fish, yet once on an outward-bound voyage to the southward of the Gulf Stream, we made fast to a ship's lower mast found adrift on the surface, which was covered with clam barnacles and surrounded with sea bass. We caught all that we wanted, and cut loose. They weighed from five to twelve pounds each, and were all male fish. The mouth of the sea bass is so large that in hauling them in from a depth of several fathoms the "sport" is reduced to a minimum by the time they reach the surface, the process almost drowning them. They are caught as far south as Florida, where two species are found, *C. atrarius*, and *C. trifurca*. The latter is a beautiful fish of a grey color, bronze head and blue and yellow fins. The filaments of the spines are red.

Twenty miles off Cape May is a comparatively shallow portion of the sea known as the "Fishing Banks." At all times during the summer and early fall, when weather permits, schooners may be seen anchored there. These fish are all taken with hook and line, and average only one pound in weight. Numerous lines containing two or three hooks each are thrown from every boat, and the occupants are generally kept busy taking off the fish and baiting the hooks. They will take almost any kind of bait.

Although these fish have never been regarded as game fish, and are usually angled for with hand lines, they nevertheless afford good sport when rods are used.

THE LABRACIDÆ.

STRIPED BASS.—Rock fish.—*Roccus lineatus.*—Gill.

Body above dusky, sides and belly a dull white; sides marked with seven or eight longitudinal lines of a coppery-brown color in salt water, and a bluish black in fresh water. It is found all along the coasts from Florida to Cape Cod. They only ascend fresh-water streams in the spring to breed, or for shelter during the winter. One ichthyologist states that after heavy rains, or the sudden melting of snow in great quantities, these fish are forced from their abodes back again into salt water; but when the freshet subsides, they invariably reascend. We have observed this peculiarity in the Hudson River, and this accounts for their apparently capricious movements—their sudden appearance and disappearance, which puzzles so many fishermen. They spawn in May, and by August 1st, weigh a quarter of a pound. Large fish are seldom taken in rivers, bays, inlets and small creeks, and we have never heard of large fish being taken in the spawning season. They are too busy with their procreative duties, and are not then "on the feed." The largest fish are taken along the coast outside the surf, from June until October, from Montauk Point to Cape Cod, especially along the islands that flank the Buzzard's Bay. For suitable tackle to capture striped bass, we prefer to take that ancient bass angler, Genio C. Scott, as authority. He has written:

"The rod should be about eight feet in length, made of two bamboo joints. The guides should be stationary on each side of the rod, so that when the rod gets set or bent by fishing one side up, it may be turned over, and the other side used. The guides should be a quarter of an inch in diameter, so as to cast a knot in the line through them if necessary. The edges of the guide should be so smoothly polished or burnished as to produce no friction upon the line. Bell metal is the best from which to make guides and tips; but some prefer settings of agate or other precious stones for the line to play through. The best line is a linen one of twelve strands, as small as the usual trout line, but six hundred feet in length, made without taper like the salmon or trout lines. The reel is of German silver or brass. The crank should be as far as convenient from the knuckles of the angler, and not so long or heavy as to produce a momentum difficult to check with the thumb. Of course, the wear of thumbstalls is necessary, or a

slip of leather attached to the reel at a convenient place to turn on to the reel under the thumb is preferred by many ; but there should be no drag or check to a bass reel, and it should be made of a size sufficient to carry two hundred yards of line without being perfectly full. Van Hoeff is the best reel maker in the city. He caps the works, so as to protect them from salt water and consequent rust, while they run as regularly, and are as finely balanced in their running works, as a first class Geneva watch.

"But for bass tackle, to fish the waters about the city of New York, a reel to carry four hundred feet of fine linen bass line will answer, and be preferable, except for Hell Gate trolling, to the large reels used at Cuttyhunk, West Island, and Newport. And while menhaden is the best bait to angle with in the ocean surf, shedder crab is the best bait for still fishing from a boat on our bays and estuaries, and the live squid—cuttle fish—is the best bait for trolling ; and a rig for trolling includes a baiting needle and sinker."

Many baits, living and dead, natural and artificial, have been tried for bass with varying success. Of natural baits the living sand eel is undoubtedly seductive, but it is often difficult to obtain even when most abundant. The best way of putting it on the hook is to insert the latter at one corner of one eye and bring it out at one corner of the other. This, if carefully done, will not hurt the eye or interfere with the liveliness of the fish. Another mode is to enter the hook at the mouth and bring it out through the throat. If living sand eels cannot be procured but dead ones be obtainable, the latter may be rendered a very good substitute for the former, by inserting a thin, sharp penknife under the skin, and cutting the backbone through in three places. Thus treated, a dead sand eel will move in the water, if skilfully manipulated, just like a living one. A dead bait is also used as a spinning lure by entering the hook at the mouth and bringing it out about an inch above the tail, the mouth being fastened tight by a piece of thread. Soft and peeled crabs, the viscera of newly caught pilchards, fresh squid (cuttle-fish), mud worms, mussels, shrimps, and "lasks" cut out of mackerel are also used as baits for bass.

A peculiar and at times a very useful bait is made out of the skin of the bass itself. "Bass skin baits" are made by cutting a long, wedge-shaped piece of skin off the stomach of the bass with

a sharp pair of scissors. Properly played this bait has a capital motion in the water, and will often kill very well. Baits of similar shape are cut out of sole-skin, parchment, gurnard skin, pork skin and ray-skin. Of these the pork and ray-skin are the best. The pork baits are cut from the salted pork in wedge-shaped strip about four inches long. They are kept from six to ten days in salt, and subsequently about four days in fresh water, and are thus made to assume a clear white hue. Ray-skin baits are simply wedge-shaped pieces of the skin of the ray dried upon a board. Before immersion a ray-skin bait is a dull, dirty white in color; but after being a short time in the water it becomes a beautiful pearly white, and whether for use with the rod, or for trolling on the surface at the end of a hand line, it is a very useful lure. The most cleanly, convenient and deadly baits, are Brooks's "silver launce" and Captain Tom's "spinning sand eel." The silver launce was introduced about four years ago by Messrs. C. & R. Brooks, Plymouth, England. It is a long, narrow, bright spinner, running around the gut trail immediately above a triangle of hooks. It is light and spins very freely, and is well adapted for use with the rod.

With a dexterity which practice can alone assume, the experienced anglers carefully sway the rod until the squid describes its slowly moving circle around the head, and then by a quick, inexplicable movement cause it to dart like an arrow straight out far over the sea, and the reel whizzes and whirls until it seems to flash fire, and you wait long and patiently for the cessation of the hum which indicates that the squid has dropped, full one hundred feet, perhaps one hundred and fifty feet away. The pleasure and excitement of capture is intense, and often the struggle lasts for an hour, when the fish is large.

Another exhilarating method of taking this fish is to back up a small boat close to the "combers," with a good oarsman to keep her clear, and then throw the squid into the surf, where the fish go to feed. Striped bass have been taken with the rod, that weighed seventy-six pounds and have been known to grow to the weight of one hundred and fifty pounds. [See STRIPED BASS in Southern Coast Fishes.]

WHITE PERCH.—*Morone americana*.—Gill.

This salt water fish affords most excellent sport. [See Southern Coast Fishes.]

THE POMATOMIDÆ.

BLUEFISH.—*Pomatomus saltatrix*.—Gill.

This fish is known as the bluefish in New York, New Jersey, and New England, except in Rhode Island, where it is recognized by the name of horse mackerel. On some parts of the New Jersey coast it is also called the horse mackerel. Form of body oblong, head rather large, snout rounded, mouth large, armed with long sharp teeth; tail deeply forked; color brilliant steel blue and silver in the young fish, and deep greenish blue in the old fish; fins yellowish.

The blue fish is a pelagic or wandering fish, passing its winters in the South, and its summers in the North. In March and April they are found off the Carolina coast. About the twentieth of May they make their appearance off the coast of New Jersey. Barnegat is a favorite ground for them, where set nets have taken as many as six thousand in a single day. Very often vast schools are driven upon the beach by porpoises and other large feeders, where they have been gathered up by the cartload with pitchforks, baskets, etc. Other schools have chased the shiners, moss-bunkers, sardines and anchovies upon which they principally feed, close in shore, and have been jigged from the surface by the hundreds. The May fish range from two to twelve pounds in weight, are poor in flesh, and ravenous as sharks. In June they are found equally abundant off and in Fire Island Inlet, and in a few days thereafter are scattered off Montauk Point, the east end of Long Island, Shagwauna reef, and other reefs adjacent. By or near the twentieth of June, depending something upon the forwardness of the season, they have spread themselves over the reefs of New London and to the eastward, on to Block Island, and thence through Fisher's Island Sound. By the twentieth of August they are in plentiful supply all through, inside and outside of Vineyard Sound, Nantucket, etc. They have gained flesh, and become quite palatable. The

size here described is seldom found to the westward of the Connecticut River. On the main of Long Island Sound it is quite interesting to see them drive the menhaden, or moss-bunkers, in shoals, causing a "sleek" on the water as they spill their oil when they chop them up with their great sharp teeth.

Early in June a size of about three pounds weight make their appearance at the same points, though much fatter, and remain in the vicinity of the same grounds for perhaps a month. In July they spread out to the eastward, up Long Island Sound to Saybrook Bar and Faulkner's Island, and westerly to Stamford, and remain until October, though occasionally shifting ground for their food, which, in addition to the moss-bunkers, consists of a small species of "shiner" (anchovy). On some of the outer reefs they remain but one or two days at a time.

About the middle of July the small creeks and rivers, from Stamford eastward to the Connecticut River, abound in a size weighing about a quarter of a pound, which, in a month grow to half a pound, and these feed on a size still smaller, recently spawned, and scarcely an inch and a half in length. The surface of the Housatonic River, from the railroad bridge to the mouth of the river, is annually covered from bank to bank with countless numbers of this small fry, drifting with the tide as it ebbs and flows, while at the same time a size larger, say about a half pound in weight, is feeding upon them from beneath. About the first of September the small fry are sufficiently large to venture into the Sound, and then they swarm in the creeks and harbors, affording great sport to lads who catch them with a float line, with shrimp for bait. By the month of October both large and small fish are all well fattened.

The peculiarity of this fish is that, by about the middle of October the large size, that weigh from nine to fourteen pounds, are generally found from Nantucket to Watch Hill, around Block Island and outside of Montauk Point; while from Stamford eastward to New London, on the outer reefs, they are of a uniform size of about two and half pounds weight, and those in the harbors and creeks are a mixture of small fish just spawned, and a size that weighs from one-eighth to one and three-quarter pounds. Another singular feature is, that by about the twentieth of October, or the first freezing weather, these fish, of all sizes, up to two and a

half pounds, vacate the northern harbors and sounds; and so sudden has been their departure in many seasons that a change of tide has utterly emptied the waters of their teeming fish-life, with the exception of an occasional pensioner who has been bitten or disabled, and dare not run the gauntlet for southern climes. More singular still, the great mass of fish, except the newly spawned, take the coast within one or two miles of shore, part of them stopping, if the weather permits, at the inlets of Fire Island, Egg Harbor, Townsend's, Canarsie Bay, Cape May, and so on along shore, using up all the feed therein, and by the month of December they are found in the creeks and rivers of North and South Carolina, where they remain through the winter, to migrate the next season to northern waters.

But what becomes of the small, newly spawned fish that disappeared the previous fall? Have they been eaten up by the larger fish on their journey, or do they remain at the North? They are not seen in the South, nor do the larger fish spawn there.

Four generations of bluefish make their appearance in our waters at the same time. It is only about forty-five years since the bluefish were first seen in our waters. They now seem to be increasing year by year in size and numbers, individuals having been caught at times weighing between twenty and thirty pounds, whereas a twelve pound fish was regarded as something remarkable twenty years ago. Large shoals were also uncommon until within the past dozen years.

On the reefs they are generally trolled for, but will take the hook with live bait. In October near the close of the season, large catches are made off Montauk Point, and from Watch Hill eastward through the Vineyard Sound, that weigh from ten to fourteen pounds, and are fat as seals; so also in Canarsie Bay, in some years they have been taken from twelve to eighteen pounds in weight. But it is only in rarely exceptional cases that these great fish are taken west of Plum Gut.

The bluefish fraternizes with the weakfish, or squeteague, on inshore grounds, and are of large size, say from five to twelve pounds. Both of these fine fish are taken with the squid or jig in the surf at Montauk, Newport and elsewhere, and afford the most exciting sport—the angler, often standing waist deep in the

breakers, throwing his squid to incredible distances by practice, and dragging the fish by main strength to *terra firma* when he has struck.

The best trolling is done from a sail boat with a six knot breeze blowing. If motion is more rapid, fewer fish will be hooked, and a great number will tear out. If the boat moves slowly, the fish will discover that the bait is a deception and will refuse it. It is dirty work, and a suit of worn out clothing should be used for the purpose—an old felt hat, brown flannel shirt, vest, thick cassimer pants, and a pair of stout brogans. To prevent the hands being lacerated by the friction of the line, rubber finger stalls or thick woolen mittens should be used. The first can be bought of dealers in rubber goods for one dollar per dozen. A well *laid* cotton line, which is not liable to kink, can be purchased at any twine store for fifty cents per pound.

For large fish, in spring and fall, use a line seven-sixteenths of an inch in circumference. For small lines choose cotton-braided ones, laid, as they are less apt to tangle than small ones, and are more pleasant to the fingers of the fisherman. If the fish are plenty, and in a biting humor, from forty to sixty feet will be ample ; but if scarce and dainty, from eighty to one hundred and thirty feet will be required. Sometimes bluefish snap at the line between where it comes in contact with the water and the squid, and occasionally through the struggles of a fish to escape the lines are fouled, and one of the number is apt to pass into the mouth of the hooked fish. In either case the line is liable to be stranded, and unless knotted, may be parted by the next fish. If an expensive line is used, the fisherman will request the boatman to knot it. If knotted, the ends unravel, and an attractive bait is presented, which hungry fish are apt to seize. If a cheap line sustains an injury, it can be cheaply replaced by a new one.

It is amusing to inspect the various squids purchased by the uninitiated—spoons and spinners of all kinds, sizes and shapes, many of them ornamented with paint or feathers, metallic fishes of various forms and sizes, some with wide spreading tails to prevent the fish from being hooked, and a large proportion cast so as to represent scales. Bluefish will bite at a spoon or spinner, but to unhook the snappish customers is the rub ; for if fingers come

near their mouths, one or more are apt to suffer. The best device is a plain, round, white, bone squid for large fish, and for the first run, when even small fish are ravenous, use a round bone squid five and a half inches long, and two and a half inches in circumference at the thickest portion. For small or summer fish, favorite squids are four and a half inches long and one and a half in circumference at the thickest point. Dr. Kenworthy says:

"Hooks should be strong and reliable. For large fish, use first quality Virginia hooks, (made by Job Johnson, of Brooklyn,) measuring in width one and three-eighth inches at point; and for small or summer fish, a Chestertown hook seven-eighths wide at point.

"A difficulty to be encountered in using a bone squid is the tendency of the hook to slip—at one time leaving the bone in contact with the bend of the hook, and at another the shaft of the hook slipping entirely out of the squid. To render the hook immovable, attach a shoulder of solder to the shaft of the hook at a point where it comes in contact with end of squid. To prevent the hook from being moved out of the squid, use several tight-fitting white pine wedges at side of shaft of hook as well as a long and tightly-fitting plug where the line passes out of the base of squid. When wet the pine swells, and generally renders the hook immovable.

"Another and more perfect method is to take a piece of No. 12 iron wire, and bend it so as to form a loop to receive the line. The wire is passed through the squid and cut off three-quarters of an inch beyond the end of the same; tin the shaft of the hook as well as the wire, after which place them in position, and to prevent movement, bind the end of wire and shaft of hook together with fine copper or brass wire. Having some melted solder in a ladle, pour it into the end of the squid so as to fill the entire cavity; then apply solder to end of wire and shaft of hook, at end of bone, so as to make an angular shoulder about three-quarters of an inch in length—base of angle in contact with bone. The solder is dressed down by a file, and a useful and reliable squid is the result. For a trifling charge any tinsmith will tinker the squids as described, and the blue-fisher will find them more satisfactory than the squids as usually sold."

As a general rule, bluefish merely nip at the end of the squid,

and as hooks are usually placed in relation to the end of the squid, the fish are hooked in the edge of the mouth and tear out. To obviate the superficial hooking and tearing out process, so arrange the hooks that the points clear the end of the squid from one and a quarter to one and a half inches. This arrangement generally hooks the fish deep.

Hooking bluefish requires no tact or piscatorial experience; all that is required is to allow the squid to trail behind the boat. When landed the best mode is to throw the fish into the boat. Through their flouncing and head-shaking the squid is generally released. This failing, the fisherman seizes the squid and elevates the hook and fish, and a few expert twists of the hand with the struggles of the fish sometimes suffice. This procedure failing, seize the fish by the back of the neck with the left hand, and if a large fish, hold his body between the knees, and with the right hand tightly grasping the squid, wrench the hook from the mouth.

One mistake made by novices is, in having too many fishing in the same boat. Three lines, one amidships and one on each quarter, can be successfully used, but two are preferable. Sometimes five and six fish from one boat, and the result is, that a fighting fish will entangle a portion of all the lines.

For successful bluefishing an experienced and industrious boatman is a *sine qua non*. The expert angler who can cast a fly or artificial minnow, and handle a nine ounce rod, may enjoy excellent sport among the bluefish, provided he uses a long shanked hook and gimp snoods. Numbers of these fish may be seen "breaking water" at any time on the banks and shoals; and by using a small boat, the rod-fisher may enjoy his sport *ad infinitum*. Within a year or so this has become a favorite method. With hook and line, gimp snood as already suggested, a nine feet one and three-quarter pounds striped bass casting-rod, a strong fine silk line, a heavy reel, and two revolving minnows, (the whole costing about $20,) the tackle is complete. The snood should be loaded sufficiently to keep it beneath the surface of the water. Another excellent lure is made by wrapping a dozen layers of cotton cloth around the leaded snood, and covering with an eel-skin.

Bluefish, we all know, must have a moving bait. Now wher-

ever you have a swift tide, if you anchor your boat and let your lines out it answers the same purpose as if you were sailing, the water rushing by the line giving the same effect.

A great deal of sport is enjoyed in catching the summer bluefish, or snap mackerel, which fill all our bays and estuaries, using a natural bamboo rod with common cork float, and hook baited with shrimp. They are caught from bridges where the current draws swiftly through, and from wharves when the tide is running rapidly.

To some fishermen the surf fishing already referred to, is deemed the most exciting method, and it is certainly very enjoyable in hot mid-summer weather. An ordinary pair of overalls, or a bathing suit is essential to comfort and unrestrained movement. When a large fish has struck the squid, already thrown well out beyond the line of breakers, the fisherman heaves the line over his shoulder, and walks his prize up the beach to dry land by main strength, which is often taxed to the utmost. No exercise can be more healthy or less wearing.

The bluefish and striped bass are the game fish, *par excellence*, of the brine, just as the salmon and the black bass are of fresh water.

THE MICROSTOMIDÆ.

SMELTS.—*Osmerus mordax*.—Gill.

A fish of silvery brightness, with a lateral stripe of silver running from shoulder to tail, much prized for the table, and when fresh having the most perfect cucumber flavor. They afford much sport to the angler, and are taken in tidal currents from New Jersey to Maine, with a light rod, hook and line, baited with shrimp. In the creeks of Long Island they are found in perfect condition from February 20th to March 20th. In Massachusetts and Maine it is forbidden to take them between the 15th of March and 1st of June. The yearlings are most prized, those older being tough and coarse. They grow to a length of twelve inches, although the average is only five or six inches. They are essentially a winter fish, and are caught by thousands through holes cut in the ice, and are then greatly prized. In the Gulf of St. Lawrence they are often taken with a small scarlet fly, while fishing for sea trout. In

the absence of better game, they afford very satisfactory pastime to the angler, and by reason of their abundance are not as much valued as they should be.

THE SALMONIDÆ.

ATLANTIC SALMON.—*Salmo salar*.—Linnæus.

This species is the representative salmon of Europe, the New England coast, the St. Lawrence Basin, and the maritime Provinces of the Dominion. Form oval, moderately elongated, with a head and back nearly on the same line, inclining slightly in the middle third of the body, and the greatest depth a little before the dorsal fin; head small and well proportioned, and equal to one-sixth of length; snout rather sharp; jaws in young fish nearly equal, but in old males the lower one longest and curving upward; a row of sharp teeth along both sides of each jaw, as well as on the palatines, but those on the vomer confined to its anterior extremity, and in some fish obsolete; the eye is moderately large, and is nearly circular, and is contained four times and a half in the length of the side of the head, and once and a half in advance of its anterior rim; the nostrils are moderately large, and situated toward the upper surface of the head, slightly nearer the eye than snout. The opercle is elevated, and narrower above than below. The pre-opercle on its posterior border is nearly vertical; the branchiostegals, or gill rays, usually number twelve, and occasionally fourteen to sixteen; dorsal, eleven; adipose, rayless; the caudal, sixteen on each side; anal, ten; the ventrals ten or eleven, and pectorals ten or eleven.

Ray formula—Br, 12; P, 11; D, 11; 0; V, 10: A, 10; C, 30. The color is slaty blue on the back, darkish on the head, duller and slightly silvery on the sides, and beneath, pearly silvery white. There are numerous black spots above the lateral line that pass from the upper convexity of the eye to the centre of the caudal fin. The dorsal pectorals are dusky, and the anal white, and the ventrals white externally and dusky internally. The gill covers are rounded posteriorly, and the tail is nearly square in the adult, but furcated in the young; the scales are regular in shape, delicate, and sunk into the thick and fatty skin—the last feature a wise pro-

vision against the abrasion of scales, which usually ends fatally. As viewed upon the market tables the *S. salar* adult size is from two to three feet long, and is the delight of all who have a *penchant* for gastronomic luxuries in the shape of fish. Spawns in November and December.

The salmon is the finest game fish in the world, without doubt, and few are the anglers who will not readily yield him precedence. The interest taken in him for this reason, has caused much attention to be paid to his propagation, and stimulated a careful study of his habits, which were comparatively unknown until within the present century. The opportunities which the culture of this fish has afforded for investigation have now made the subject familiar to everyone interested in ichthyology. The birth and stages of growth of salmon, and his general habits, are perhaps as succinctly, intelligibly, and correctly stated in Hallock's "*Fishing Tourist*," as in any other publication, and we copy the annotation here:

"The salmon's existence, like man's, is divided into four periods—infancy, youth, manhood, and ripe old age, and these several stages of fish-life are designated by the names of Parr, Smolt, Grilse, and Salmon. One portion of this existence is passed in salt water, and the remainder in fresh; in salt water he feeds* and grows fat, and in the fresh expends his strength and vital forces. These conditions are the necessary precedent and natural sequence of procreation. Many of the species die in the attempt to reach their spawning-grounds, and many in the act of spawning; these are the ordinary phenomena of reproduction throughout the animal creation. It is also evident that salmon must vary in size and general appearance according to their ages, and that adults may be as distinctly and variously marked as the kine on the lea, and still belong to the self-same species. Along the coast of Nova Scotia old fishermen claim to distinguish the fish that belong to different rivers—it being a well known fact in the natural history of the salmon that they almost invariably return to their native streams to spawn.

* The food of the Salmon, previous to its quitting salt water, consists of the eggs of *Echinodermata* and *Crustacea*, this rich aliment giving the color and flavor for which its flesh is so highly prized. This is sustained by the observations of Professor Agassiz.—*Rep. U. S. Com. Fish and Fisheries*, 1872-3, *P.* 224.

"After they have ascended to their spawning beds it requires ten or twelve days to fulfill their mission, and then they go back to the sea. It takes the ova three or four months to hatch, according to temperature, forty-five degrees being perhaps the most favorable. In two months after the young fry leave the egg, they have grown to an inch and a quarter in length; in six months to three inches. At the end of fourteen months one-half the family have completed their parr* or infant stage, and go down to the sea as smolts, much changed in their general appearance. The other half of the family follow at the end of the second year, though a few will remain until the fourth year. The smolt, in the nourishing waters of the briny ocean gains a pound in weight per month, and toward the close of summer returns to his birth-place in the blue and silver livery of a grilse, and very like a salmon in appearance. The grilse tarries in the upper river until the following spring, and then returns again to the sea a full-grown salmon—three years being the time required to reach his maturity.

"The season of the year at which salmon spawn varies according to geographical locality and temperature of water. For instance, in the Port Medway River, Nova Scotia, salmon are taken with a fly in February, when the ice is running, while in the lower St. Lawrence they are not taken until the middle of June. The time of spawning often varies in the same river, and is determined by the period at which impregnation has taken place. It is a peculiar fact that the salmon propagates its kind before it is adult, the males only, however, attaining sexual maturity. A portion of the "run" thereupon being riper than others, spawn sooner, and having fulfilled their mission, return at once to the sea, while their less fortunate kindred must continue their pilgrimage, perchance to headwaters. Where the rivers are short, the salmon return merely emaciated and reduced in weight; but in the Columbia, which, with its tributaries extends hundreds of miles, they die by millions, worn-out and exhausted by their incredible journey."

The recently conceived impression is that salmon spawn but

* To an unaccustomed eye the parr resemble trout, and are often basketed by anglers under the impression that they are trout, but they are readily distinguished by their bright silvery scales which easily rub off when the fish is handled; also the spots on their sides are intensely carmine, and ranged in a horizontal line. The body is more elongated, and there are other distinctive characteristics.

ence in two years, which, if a fact, accounts for their periodical scarcity in certain rivers. Tags that have been attached to fish set loose have never been brought back the next season, although several have returned on the second season; which facts seem to verify the opinion as given above.

Salmon do not eat while on their travels; or if perchance they do feed at long intervals (as setting hens do when they come off their nests betimes) they digest so rapidly that nothing has been found in their stomachs in quantity sufficient to determine what constitutes their favorite bill of fare. It is only when resting in occasional pools that they take the angler's lure. At the mouths of rivers, however, on the very threshold of their departure for the upper waters, they will take bait and red worms with avidity.

Fly fishing for salmon in no wise resembles fly-fishing for trout. In the first place the fish being heavier the rod is more ponderous, and the man who is handy with an eleven feet single-handed trout rod, will assuredly bungle with an eighteen feet two-handed salmon rod, until practice has made him expert. Salmon are caught only in those places where they halt to rest, and such places, called pools, are either at the head or the tail of a rapid. In long reaches of still water, often a two-miles stretch or more, salmon may be seen moving slowly up stream in no particular hurry, as if they enjoyed their elegant comfort for the time being; in these places is the spearsman's golden opportunity, but the fly-fishermen seldom meet with encouragement. Here they are often seen frolicking and turning somersaults in the air—the only bit of real enjoyment they seem to have in their transitory life; but it is of no use to cast flies over them; they will not rise. The best times to fish for salmon are in the early morning and from four o'clock P. M. until dark, and the best success is had after the first spring freshet begins to subside. After a month of good fishing then—say from the middle of June until the middle of July, the chances are precarious. There is always a late run of fish in August, and September, which often brings a full reward, but it is unwise to trust to it. The sagacious angler goes early in the season.

In fishing for salmon our choice of flies has to be tested by experiment for the time being. Rules go for naught. That which killed in the one pool last year on the same day of the month may

be inefficacious now in the same pool, though we are free to say that there are certain flies which always kill better in certain rivers than other flies of equal merit. If the fish won't rise to one pattern, try another—keep trying and be patient. Approach your fish by gradually lengthening line, as the old gallant coquettes with the coy maiden, leading him gently up to his work through his instincts. Instinct teaches the salmon to rush after a trailing fly, just as a kitten does after a moving string. He doesn't wish to *eat* it. But the fly must be manipulated gingerly and deftly, or the fish will obstinately refuse to notice it, or quietly move away. If the fly is thrown nervously or violently, the salmon will run off affrighted, just as the kitten runs under the table in like circumstances. As the salmon line is heavy and takes up much water, especial care should be used when lifting for a cast, to start it a little first, and then withdraw it steadily, upwards, askant, and backwards. Use a one hundred yards of laid silk waterproof with a nine feet gut leader. Some use a fly dressed on a double hook, which is well enough when angling for large scores, as the fish is more surely hooked; but for *sport*, and not numbers, a single hook is preferred. It is a choice between green heart and six-split bamboo for rods. The latter, being lighter, fatigues the less; but some maintain that the green heart delivers the line better, farther and straighter.

The salmon is a leaper. Leaping is his favorite expedient to detach the fly from his jaws, so, when he leaps, deferentially lower the tip of your rod and save your fish. In gaffing, coolness and dexterity are required; never jerk your gaff violently, but lift it sharply upward and inward, endeavoring to fix the point abaft the shoulders. No anathemas will compensate for the loss of a fish by the clumsy handling of the gaff after a persistent battle of an hour's duration.

As the art of fly-fishing can scarcely be imparted; and as the conditions of battle and the strategy employed vary greatly with each salmon captured, it is almost useless to attempt to instruct except in a general way. Some information, however, may be gathered in the art of fly-fishing by a perusal of the chapter in another part of this volume which has been set apart for this purpose. The great point to acquire is to keep your fish well in hand,

giving him line when you cannot help it, and reeling in all you can get, as occasion offers. When imperatively necessary to check a fish, do it at the risk of your tackle, by giving him the but of the rod so that the power of its yielding arch may be exerted to its fullest. When your reel is emptied, follow your fish with your body and soul, regardless of obstructions or the moisture and temperature of the water. If you have a canoe available it can often be put to most advantageous use, if your paddler is expert and up to his work.

The natural range of *Salmo salar* extends from middle Labrador to the Connecticut River. It has been widely introduced, however, into latitudes far south of this river.

Sea Trout.—*Salmo immaculatus : S. canadensis.*—Hallock and Scott.

Scientific authorities place this fish among the doubtful species. While in general appearance it resembles the *salmo fontinalis*, which many ichthyologists claim is identical with it, its traits are so different that in describing it, we are obliged to speak of it as a distinct variety, to make our remarks applicable, even if we admit that it is the same fish.

In the first place the sea trout, known as such, are confined to Canadian waters exclusively. They are caught only in mid-summer, and seldom under a quarter of a pound in weight. Their average of all localities may be said to reach two pounds, while in the river Nouvelle, (Gaspe) which empties into the Bay Chaleur, they reach six pounds, an extraordinary weight for *salmo fontinalis* ; though by no means marvelous. The "strawberry run" of sea trout, as it is called, occurs about the 1st of July on the southwestern coast of Nova Scotia, the fish moving east as the season advances, until they reach the north shore of the St. Lawrence about the 5th of August. Evidently an immense school strikes in from the sea, detachments dropping off as it progresses, into the rivers along the coast. The fishing season lasts about six weeks, the fish meanwhile ascending to the headwaters of the streams, and often surmounting falls of steep ascent. They are taken in nets in immense quantities, and are salted and barreled for commerce, the common brook trout taken with them being invariably rejected by the fishermen as much inferior in quality.

The sea trout are distinguished instantly by their lustrous silvery color, their broad shoulders, small heads, and general fullness of condition. When closely examined their scales are found to be much larger than those of *salmo fontinalis* which are scarcely perceptible, and their crimson and blue spots are fainter. Their flesh, too, is always pink, never adopting that white, cream color, or deep red of the common trout. When taken on the hook with fly, they afford much better sport than their congeners of the brook, which are invariably taken at the same time, in the same places, with the same flies.

Now, as it is well known that all brook trout go into salt water to feed, whenever they can get access to it, it is plausibly argued that these sea trout are merely a clan or detachment of the brook trout which have temporarily left their fresh water haunts for the sea, and are now returning, much improved in quality, beauty of color, strength and activity. But if we must accept this as a postulate, we must be permitted to ask why the same peculiarities do not attach to the trout of Maine, Cape Cod, and Long Island? Why do we not discover here this periodical mid-summer advent and "run" of six weeks' duration; and why are only isolated individuals taken in the salt water pound nets and fykes of Long Island, *et cetera*, instead of thousands, as in Canada? Moreover, the Canadian sea trout are never taken in the small streams, but only in rivers of considerable size, and the same trout uniformly return to the same river, just as salmon do—at least, we infer so from the fact that six pounders are invariably found in the Nouvelle, and varying sizes elsewhere. Besides, we must be able to answer why a portion only of the trout in a given stream should periodically visit the sea at a specified time, while an equal or greater number elect to remain behind in fresh water; for we may suppose that, having equal opportunities, all have the same instincts and desires.

On the coast of Labrador, the melting snows upon the rocky islands that girt the coast form small rivulets that tumble into the sea after a half mile run, and we have found the sea trout plenty around their mouths, but no fish life whatever in the fresh water; but on the main land where the streams were larger and spring-fed, the sea trout entered. Again, in many localities, the streams fall over a perpendicular rock from a plateau above. Into these

no sea trout can enter, nor do we believe that out of them any numbers of native fish migrate. There are many streams along the whole Canadian coast in which sea trout are never found, but there are big trout in them that weigh a pound apiece, big enough to go to sea if they like, and as well able to do so as the trout of other streams.

However, argument will convince nobody who is set in his belief, and until a comparative study of the structure of the two varieties is made, we shall have to remain in the dark so far as this interesting question goes. The sea trout has been successfully propagated artificially, and if it is the better fish, fish culturists will prefer to cultivate it instead of the common trout.

The best places for taking sea trout are the sandy spits that are uncovered at half tide, where one can run barefooted up and down a hundred yards or more of soft yielding surface, and play his fish *ad libitum* with only half the usual length of line or work of reel. Further up the stream they fill the pools where they pause to rest on their journey, and can be seen lying on the bottom in schools. The Micmac Indians, who camp on all the rivers in summer, eagerly watch the coming of the sea trout, and the angler who would enjoy the cream of the sport must wait, like them, if he expects to capture one of the finest fish that swims.

CLUPEIDÆ.

The Shad.—*Alosa sapidissima.*—Gill.

Of late years shad have been included in the list of game fish, and many anglers have devoted much attention to the sport of catching them, especially in the Delaware, Housatonic and Connecticut Rivers. Shad have also been taken with the rod in the Savannah River, and in the St. John's River, Florida, at Lake Monroe. They are taken either with fly or with angle worms, shrimp or other bait. Shad commence to take the fly as soon as the water begins to grow warm, and continue to take it as long as they remain in the rivers, which is some time after July first in the Connecticut, the latest river.

A most excellent cast of flies is composed of the following: white miller for leader, with red ibis, snipe and any drab fly with

lighter body, arranged as you please. All of these flies must be quite small, as the shad bites rather delicately, so that a large fly is not taken sufficiently far into the mouth, and the hook fails to penetrate the hard bony substance which it meets there. Fish from a boat anchored in a current about fifty or seventy-five feet above a deep eddy; as the flies float down the stream the current keeps them on top, and after they have reached the eddy the pole should be swayed gently back and forth to keep them in motion.

The best time to fish for shad is early in the morning, and from five until eight in the evening. As soon as it commences to grow dark they may be taken in still and shallower water by casting, in the same manner as for trout or bass, and may be taken in this manner until long after dark. Only the very lightest trout tackle should be used for shad, as the fish will almost always break loose if the rod be strong enough to allow him any purchase whatever.

Fly fishing seems to have been measurably successful only in the Housatonic and Connecticut Rivers. Little success with fly has been enjoyed in the Delaware and other rivers of Pennsylvania, where the fish altogether prefer bait, which they take with avidity at times. Mr. John P. Motley, of Warren, New Jersey, has related his experience with bait through an article in the Trenton *State Gazette*, in which he says:

"Young shad, from the time they are hatched until they pass down into the bays or ocean, where they remain until old enough to return for spawning, feed on small insects occasionally, when these insects fly near, and almost touch the surface of the water. We often see them leaping above the surface when the weather is favorable, and catching gnats that are within their short reach. But when they get to deep water, where they remain until next season, their food is infusoria—animalcules that constitute the greater part of the slimy growths that cover almost all submerged substances.

"The shad is not intended to leap from the water, or rush after any bait, when he has attained a size beyond feeding on gnats that are flitting over the shallow margins he has to travel in going down the river to the sea. This much I write to account for my failure altogether with flies. I prepared a bait adapted, as I thought, to

what the fish required. I still had doubt whether the shad would take it, as he was on his way up the river, not to eat, but for the purpose of propagation. He had started from his ocean home fat and vigorous, with accumulated force enough to carry him through, with the little addition he might perhaps receive from the fresh water infusoria that he might imbibe by the way. This idea was strengthened by the fact that shad are fatter caught below Philadelphia than farther up the river. They are not as firm in fibre and delicately tasted as at Trenton or Easton. Exercise in fresh water absorbs fat, hardens the muscle, and heightens the flavor. I prepared a glutinous mass of Irish moss *(Chondrus crispus)*, gluten from wheat flour, oyster juice, fibrine from bullocks' blood, and powdered sulphate of barytes. The last article being tasteless, insoluble, and heavy, was added to give weight to the compound. All these articles were well mixed and ground together, sufficient oyster juice being added to soften and discolor the Irish moss. I rolled the mass into sticks, like macaroni, dried with a gentle heat, and ground up into fragments as coarse as Dupont's ducking powder. My hooks—No. 6 Kirby's—were whipped on brownish-green linen snoods of ten inches length; the snoods were fastened at intervals of a foot on a line of the same color. The three hooks attached to the line were covered thickly nearly to their points with the preparation in its moist state, and then dried until the coating became hard, so that in dissolving slowly it might adhere for a long time. Thus prepared, I tried my first experiment in deep water below the first island down stream, from the mouth of the Pohatcong, near the Belvidere Railroad. The night previously, as a lure, I had sifted a pint or more of the preparation into the water at the head of the eddy, and anchored a coarse strainer, cloth bag, containing about the same quantity at the same place. Owing to the barytes, the powder thrown into the water sank down and remained on the water to dissolve slowly. In the morning I drifted gently down the river, and anchored my boat noiselessly about twenty yards above the pool. With a small gourd for a float, giving five feet for the depth of the lowest hook, I paid out line until the float was about four yards below the cloth bag. I had not long to wait. The float began to bob, and was soon under water. I tightened the line, and found a fish of peculiar action was

hooked. His whole effort was to sound, to run to the bottom, from which the slightest pull would bring him back. I thought it must be a very shy fish, with a tender mouth, and a small caudal fin in proportion to his size, for he seemed to have but little propelling force. After some careful handling I was enabled to bring the fish up to the side of the boat, and land it with a net. To my great satisfaction, it proved to be a four pound shad, a melter, as fine a fish as one would wish to see. That morning, in less than an hour, I caught six others in the same way—two melters and four roe shad; two of the last weighed five and a half pounds each. During this hour's fishing the preparation had hardly all dissolved from the hooks. I have been out twice since in the early morning and have had equal success."

Thaddeus Norris, Esq., says, in *Forest and Stream*:—"Many years ago, when I fished with a bow-line dipsy for perch in August, I occasionally took young shad six inches long, in water from fifteen to twenty feet in depth, and have since heard of their being taken in the same way. These fry were undoubtedly the produce of shad that spawned in May or June. The smaller fry, those of two inches, which are so easily taken with a small fly from the Long Bridge, are from the ova of the late spawners. I have also known perch-fishers on the "Hen and Chickens," a rocky shoal in the Delaware, eight or nine miles above Philadelphia, when fishing for perch in September, to take shad varying from twelve to fifteen inches in length. They would come in schools and bite voraciously at the worm bait and not far below the surface."

Mr. Theodore Lyman, of the Massachusetts Fish Commission, has thrown more light on the growth of shad and their migrations to and from sea, than all other writers on this subject. From information gained from old net-fishermen, and from his own observations, as shown in his various reports, he has clearly established the fact that shad go to sea the autumn of the same summer they are hatched. That the females remain at sea two years. That many of the males, perhaps all of them, return to their native rivers when not over a year old, as they are then pubescent and the reproductive instinct impels them to the rivers. When varying in length from nine to twelve inches, they are known on the Connecticut as "Chicken Shad." In one of the reports alluded to, men-

tion is made of the great numbers of such young shad that are taken in herring seines and rated and sold as herrings, or properly speaking, alewives; for the herring proper, although called by that name, do not enter fresh waters. That young shad will rise at an artificial fly is natural, for flies and larvæ are their natural food. Mr. Lyman has detected and given the scientific names of such flies taken from their stomachs. This naturalist has also discovered that young shad have teeth, while the adults have not. The male salmon, as well as the male shad, is pubescent a year earlier than the female. That shad remain in the rivers two years, go to sea, and the following summer return full-grown fish, is a notion that is now obsolete with intelligent people who have given the matter attention and thought. When female shad return from sea the first time they weigh from two to two and a half pounds, are not merchantable fish, and hence are not brought to market.

GASPEREAU; herring (Southern States); alewife (New England); gaspereau (British Provinces); spring herring (New England); hyack (Nova Scotia); kyack, bluefish, alewife, sawbelly, cat-thresher (Maine.)—*Pomolobus pseudoharengus*.—Gill.

Although this representative of the herring family is in no sense a game fish, generally speaking, it has been known to afford the keenest sport to the fly fisherman in Nova Scotia and New Brunswick in the spring when it ascends the rivers to spawn. By the Indians of Southern Nova Scotia, it is known as the "hyack," and is taken by them in great numbers with dip nets, at the foot of dams or natural obstructions which they attempt to surmount. It was the principal food fish of the Acadians a century and a half ago, and was called the *gaspereau* by them. Several rivers in the Maritime Provinces bear this name, and a considerable arm of the Basin of Minas at the head of the Bay of Fundy, is known as Gaspereau Bay. The spring run, during which only can they be taken with a rod, extends from the first of May to the middle of June. Flies similar in color to those used for shad, but smaller, are requisite. The gaspereau is deep blue on the back, shading to silvery white on the belly. They run from eight to ten inches in length.

NORTHERN INLAND FISHES.

THE PERCIDÆ.

YELLOW PERCH ; or Ring Perch.—*Perca flavescens.*—CUV.

SIDES yellow ; six to eight dark vertical bands over the back ; fins orange.

The yellow perch is one of the most widely distributed of our fluviatile fishes. They are sometimes caught weighing three or four pounds, and even more. Take bait freely, and are often taken with a fly, preferring the red ibis. They swim deep, and are usually found in company with the sunfish, and frequently with the black bass.

THE BLACK PERCH.—*Labrax nigricans.*—De Kay.

Is a deep brownish black fish, with a yellowish tinge, found in various deep fresh water ponds on Long Island, New York, and takes the fly readily, affording much amusement to the angler. Weighs one or two pounds, and is esteemed as food. It has the general form of the yellow perch.

PIKE PERCH ; wall-eyed pike ; white salmon ; glass-eyed pike ; *Stizostedion americana.*—Girard.

This fish is known in American waters as the white salmon, Ohio salmon, yellow pike, and western salmon. Color, yellowish olive above the lateral line, lighter on the sides ; silvery beneath ; head and gill covers mottled with green ; dorsal fin light yellowish, spotted with brown ; pectoral fins yellowish olive. It is a true Perch, although its form and habits suggest very naturally the idea of a Pike. Its scales are hard, close and difficult to detach. The mandibles are wider, and the jaws stronger than those of the pike, while its teeth are shorter and closer set. It is exceedingly voracious, and is highly prized as food. It is caught readily with

the hook, baited with minnow or crayfish. The best time for fishing is in the dusk of the evening. The foot of rapids, or beneath mill dams appear to be its favorite haunts. In the heat of summer it seeks the deepest part of lakes, or the coolest part of streams concealed under weeds or grass. Use regular bass rod and reel, and fish with a float. Anchor your boat at the side or above a rapid, and let your bait run down the rapid, for they sometimes lie behind huge rocks in the rapid. They average perhaps, six or seven pounds, but are often much larger, and at the Little Falls of the Mohawk River have been caught weighing as high as twenty pounds. The meat is hard, and laminates in rich white flakes. Spawns in April and May. (See Western Fishes.)

WHITE LAKE BASS.—*Labrax albidus.*—De Kay.

Very common in Lake Erie, where it takes the hook readily, and is esteemed as food. Color, bluish white above the lateral line, with a few narrow parallel dusky streaks above and beneath this line; sides and belly white. Fins, brownish, tinged with blue.

ROCK BASS.—*Centrarchus æneus.* (Cuv. and Val.)

This fish is found in Lake Champlain, and generally in the lakes throughout New York State, and also in the canals and the Hudson River. It bites freely, and is pretty fair game. It is found in greatest numbers around islands and in shallows near the shores contiguous to the entrance of spring streams. A notorious spawn-eater; it ranges in weight from a quarter of a pound to a pound. It bites at worms, grubs, grasshoppers or shiners, and may be taken with a small-sized Buel or McHarg trolling spoon. The general color of this fish is a dark greenish bronze; top of head and back a dark bottle green. Its sides below the lateral line are covered with six or more longitudinal series of subquadrate dark spots. Pupils of eye dark purple, with a narrow golden ring.

BLACK BASS.—*Grystes nigricans; Micropterus nigricans.*—Gill.

Among the various candidates for popular favor, for introduction into new waters, the Black Bass has always deservedly occupied a very high place. The excellence of its flesh, its rapid growth, its endurance and its game qualities, all contribute towards this appreciation. Little by little this fish has been carried from one

part of the country to another, until now there is no part of the United States, east of the Rocky Mountains, where it may not be found in greater or less abundance. Its great merit in this connection lies in the fact that it requires no care in the way of culture, since a few pairs transferred bodily, will in time furnish a numerous progeny. In consequence of its habit of making a nest and guarding it against intruders, the fish is enabled to readily secure the perpetuation of its race.

Much uncertainty has existed, until recently, as to the number of species really entitled to be called Black Bass, many having been described and supposed to be peculiar to particular waters. Prof. Gill, of the Smithsonian Institution, has lately made a critical and exhaustive investigation of this subject, and with the aid of the large amount of material belonging to the Institution and that of the Museum of Comparative Zoölogy at Cambridge, he has come to the conclusion that there are really but two distinguishable forms; the one the *Micropterus salmoides*, or the small mouthed bass, and the other, the *M. nigricans*, or the large mouthed variety.

Both of these species occur naturally over a great part of the United States, with the exception of New England and the Atlantic seaboard of the Middle States, although only one, the small mouthed, seems to have been originally an inhabitant of the hydrographic basin of the Ohio. It is not to be understood, however, that there are no variations from the standard type to be observed in the bass of these two groups, in different localities, and it is not improbable that a careful criticism will reveal certain trifling peculiarities, which may serve to distinguish those belonging to a particular area. The differences of the two primary forms are, however, perfectly appreciable, so that even the veriest tyro, seeing them side by side, must admit their distinction.

These differences, as stated in the paper of Prof. Gill, are as follows:

CONTRASTED DIFFERENTIAL CHARACTERISTICS.

Scales of Trunk.

SMALL-MOUTHED.	LARGE-MOUTHED.
Small (*e. g. lat. line*, 72–75; between lateral line and back, 11 rows).	Moderate (*e. g. lat. line* ,65–70; between lateral line and back, 7½ or 8 rows).

Scales on nape and breast.

Much smaller than those of sides.	Scarcely (on nape), or not much (on breast) smaller than those of sides.

Scales of cheeks.

Minute (*e. g.*, between orbit and preoperculum, about 17 rows in an oblique line and about 9 in a horizontal one).	Moderately small (*e. g.* between orbit and preoperculum, about 10 rows in an oblique line and about 5-6 in a horizontal one).

Scales of interoperculum uniserial.

Covering only about half the width of the bone.	Covering the entire width of the bone.

Scales of preopercular limb.

None.	Developed in an imperfect row (*e. g.*, 3-5 in number).

Scales on dorsal.

Developed as a deep sheath (involving last spine) of small scales differentiated from those on the back, and with series advancing high up the membrane behind each ray (except last two or three).	Developed as a low (obsolete) shallow sheath, and with series ascending comparatively little on membrane behind the rays (none behind last five or six).

Scales on anal.

Ascending high behind each ray.	None (or very few).

Mouth.

Moderate.	Large.

Supramaxillary.

Ending considerably in front of higher margin of orbit (about under hinder border of pupil).	Extending considerably behind the posterior margin of orbit.

Rays.

Dorsal articulated, 13.	Dorsal articulated, 12 (I. 11).
Anal. III., 10, 11.	Anal. III., 10.
Pectoral, 1, 16–1, 17.	Pectoral 1, 14 (1, 13).

Dorsal fin in front of soft portion.

Little depressed, the ninth spine being only about a half shorter than the longest (3, 4, 5) and a fourth shorter than the tenth.	Much depressed, the ninth spine being only about a fourth as long as the longest and a half as long as the tenth.

We have said that there are decided variations from these two standard types, and these we are certain that Prof. Gill himself readily concedes. Indeed, there is no genus of known fish that exhibits such numerous and striking varieties; just as there is no family of fishes which is presented in so many forms as that to which the black bass belongs—namely, the *Percidæ*. These variations puzzled the observant De Kay forty years ago, and are no less an enigma to superficial students at the present day. They are most numerous in Northern waters; quite frequent in the West; and several at the South. The general colors we find to be as follows: bluish, deep green, almost black, grass green, light green, greenish white, deep olive, and light olive. Some are spotted, others barred, and some without any lateral markings. Locally they are termed perch, bass, chub and trout, and are severally known as yellow perch, black perch, Oswego bass, strawberry bass, white bass, rock bass, black bass, marsh bass, river bass, spotted bass, speckled hen, green bass, slough bass, etc., etc. They vary much in their proportions, some having heavy shoulders, while others are slender; they also vary in their habits of living, their food, locations, temperature of water, and times of spawning, characteristics sufficiently diverse to constitute distinct species, if classification were not absolutely based upon anatomical structure.

In Canada there is great diversity as to weight and shape. For instance: those caught in ponds and lakes in the counties of Brant and Oxford, are much larger and thicker than those found, say, in Grand River. Notwithstanding, where there are long, deep, still stretches of water formed by mill dams as at Galt or Paris, bass are often taken averaging in weight those taken in lakes. In Pine Pond, on the south edge of the township of Blandford and Blenheim, Oxford, the bass are remarkable for their thickness at the shoulders. So distinct is the figure and general configuration—especially as regards this latter quality—that we are inclined to believe that they are identical with the Oswego bass. The Oswego bass and the bass of the Mohawk and Hudson Rivers, show dusky bars on their sides after being caught. When hooked, the first move is into the air, and it is continued, more or less, principally more, until the struggle ends in the death or escape of the fish. The first fishing for this bass in the spring or

summer is done on the "riffs" or rapids; from thence they work down to the foot of rough water, and later, as the weather is warmer, to the eddies and pools. The Lake George bass almost always when hooked go deeper, rarely appear above water until they near the boat or landing net, always excepting when you troll. In Lake Ontario are two varieties, one at Stony Island being very thick and light colored, always sounding the minute they are hooked; another in the Black River Bay, dark colored, much slimmer than the former, and almost always coming to the surface the first thing. The strawberry bass is a flat, deep fish, has a nose well turned up, is thinner than the Oswego bass, and has black and yellow blotches.

However, in attempting to define differences, nothing is accomplished toward identification or separation; only confusion is increased. We recognize the simple fact, merely, that owing to local causes of food, temperature and quality of water, and perhaps to these only, very apparent differences obtain in stripe, size, color, superficial markings, action, and periods of spawning.

Most bass undoubtedly hybernate, and are not seen or caught in winter. But Mr. A. W. Latham, Fish Commissioner of Minnesota, has stated that in some waters in that State they are occasionally caught through the ice with hook and bait. They then lie low in deep water, and seem after a fashion to hybernate. Samuel Wilmot, of the Government Hatching House in Canada, states that the fishermen take them with hook and line through the ice in the Bay of Quinte, near Belleville. Fred. Mather, a well known fish breeder of New York, says:

"I kept one nearly all winter in an aquarium, and it did not eat, and seldom moved anything except its eyes. I have also tried to catch them from the small but well-stocked pond of Hon. S. H. Ainsworth, at West Bloomfield, without success. I have, however, seen those that were taken with a hook in Northern Michigan, in March, while it is still winter in that locality."

The fish begin to spawn about the middle of May. About a month previous to the spawning season they pair, and leave the deep, still water where they have spent the winter, and seek out some retired spot in shallow water, about eighteen inches or two feet deep, but near deeper water to which they can fly when

alarmed. Here they make their nests by scouring from the pebbles on the bottom all the mud and slime. The nest is circular, and about twice the length of the fish in diameter. Here the female lays her eggs, which at once become glued to the pebbles, where they remain for eight or ten days, when they hatch, the female all the time remaining on or near the nest to keep off predatory intruders.

In two or three days after hatching, the young fry scatter mostly into deep water, and are not seen again until September, when they come in shore, having grown about two inches in length. If well supplied with food, they grow about four inches the first season. When two years old they reach a pound in weight, and after that grow about a pound each year, until they weigh six or eight pounds. While young the fish feed on insects, worms and larvæ, but when larger they appear to rely mainly upon other small fish. They are not very particular as to their diet, their main care being to get plenty of food. They are voracious eaters, and when hard pushed by hunger, do not scruple to devour the smaller and weaker of their own kind, and in this fact probably exists the reason why they have multiplied much more rapidly in some ponds than in others which, to all appearance, are equally as well adapted to them. Waters which abound in chub, minnows, suckers, insect larvæ and crayfish afford plenty of food for the bass, and in them he multiplies and grows apace, but in waters where these are wanting, he is reduced to the necessity of eating his own kindred, and of course his increase is very limited. Black bass weighing from three to six pounds each, are too large for stocking open streams, they being liable to wander, while the small ones are more likely to remain near where placed. These small fish commence propagating in July, and continue into the month of August.

Little need be said of the merits of this fish for the table. Few better pan fish are known to epicures. He is thick, solid and heavy, has little waste and few bones about him, is sweet, tender and juicy, and when well cooked makes a dish fit for a king.

The methods of taking black bass are by trolling with minnow or spoon, casting with artificial fly or live minnow, and by still-fishing with a great variety of baits. Probably, as a rule, live bait is

the best, and from eight to twelve feet of water the best depth; but some of the finest specimens which have been coaxed from ponds have been taken with worm bait in fifty feet of water. The fact is, however, that flies are often most killing at times when baits of any kind are hardly serviceable. For instance in the Delaware and Schuylkill the fish will not rise to the fly where they are mostly caught with bait, for the fishing is essentially bottom fishing in deep water (say from fifteen to twenty feet), at the foot of dams or falls, or in still deep pools. In such places those most successful use a weighted line, and endeavor to keep the bait from two to three feet from the bottom. Now one would cast with little effect with small flies, especially in such places, because of the great depth of the water. The fact of the necessity of special flies for particular places, from all testimony, seems quite indispensable. The non-success of flies in bass fishing arises more from faults in their size and color than in lack of appreciation in the fish; most of the bass flies sold by the trade generally have only a local reputation, not applicable to all conditions arising from the varied haunts of this fish; and this fault can not be corrected except by observations of the many conditions that arise.

The most approved patterns for northern waters are the following:

PAGE FLY.—Scarlet wings with scapulas of guinea fowl.

HOLBERTON FLY.—Orange body ribbed with gold tinsel; head of peacock's herl; a hackle of peacock's herl mixed with purple; tail of wood duck feathers tipped with scarlet; under wing coverts of scarlet ibis mixed with mallard feathers dyed yellow, outer wing coverts of wood duck feather, with two long rays of peacock's herl, the latter giving the fly a very jaunty and attractive appearance which even the best educated salmon could not resist.

TURKEY BROWN and TURKEY GREEN.—The first-named has turkey wings, brown body ribbed with gold, red hackle and wood duck tail streaked with scarlet; the turkey green is similar except that it has a green body.

FERGUSON FLY.—*Hook.*—Medium No. 2 Sproat, or in Limericks about No. 10. *Tail.*—Peacock, yellow and scarlet, a portion each. *Body.*—Made full, a bright yellow tipped and ribbed with gold. *Legs.*—A green hackle, quite bushy, tied in only at the head of the body under the wings. *Wings.*—A portion each of yellow and scarlet feather with the dark brownish mottled feather from the wing of the wild or tame turkey.

Patterns of bass flies are various, and can be multiplied *ad libitum*, gaudy colors being generally combined. Scarlet and white used to be exclusively used. Now we have:

1. Scarlet wings and coverts or scapulas of wood duck feathers.

2. Scarlet wings, white scapulas, hackle of purple and orange, and tail of yellow, white, scarlet and wood duck mixed. Body orange and green whipped with silver tinsel.

3. Wings of rayed mallard feathers dyed yellow, scarlet scapulas, body yellow, hackle of peacock's herl mixed with yellow.

4. Turkey wings, hackle of scarlet and orange, tail red, yellow and black, body orange whipped with green and gold tinsel.

5. Wings white, scapulas scarlet, body lavender and peacock whipped with silver tinsel, deep purple hackle and tail of blue, white, scarlet and yellow, mixed.

6. Parrot feather wing (green), yellow hackle, green body whipped with gold, tail scarlet and white.

7. Turkey wing, body orange whipped with silver, green hackle, tail yellow and scarlet.

8. Turkey wing, brown hackle, peacock body terminating in yellow, with scarlet tail.

9. Brown cock feather wings, dun body whipped with orange, hackle of grey rabbit's fur, tail brown.

10. Orange body and hackle, scarlet wings, scapula and tail of jungle cock feathers.

11. Blue body whipped with gold, blue hackle, wings of ashes of rose color, scapulas of jungle cock mixed with black, tail scarlet, black and white, and black antennæ.

12. Scarlet body whipped with silver, wings dyed subhyaline and terminating in two bars of white and black, coverts scarlet, hackle grey and black, tail black, white and red.

13. Body solferino color, wings the same, coverts grey, hackle brown, tail grey, head black—a very killing fly for southern, western or northern waters.

[For southern and western patterns see the appropriate chapters of this book.]

The baits taken by the black bass are as diverse as the styles of flies. Bass are almost omnivorous, taking red worms, crickets, grasshoppers, fresh water mussels, frogs, shrimp, crayfish, minnow and dobsons, so called at the north and known as the Helgramite at the south; the same being the full grown larvæ and pupæ of several aquatic species in the family Sialina. Their feeding ground is chiefly in sluggish rivers. They are rare in mountain streams or head springs. They are both herbivorous and carnivorous. Ephemeridæ, small-sized beetles, and water-fleas, *entomostraca*, are their principal food, but they have been reared to maturity in aquaria on an almost exclusively vegetable diet. The wings of the perfect insect are almost twice the length of the body, closely reticulated with veins, semi-transparent, and of a yellow ashen color. An imitation made of newly tanned

leather was used with wonderful success in the trout streams of Western Virginia fifty years ago.

In the early season, from June to last of August, the best success is had in deep pools, or under shadow of dams and falls where the water is quieted a moment after its plunge, casting the flies into the tumbling waters and giving the current its own way with them, simply keeping them on the surface. In the later season, from middle of September to end of October, the bass seem to live more in rapid, deep currents well out in the stream where it is less disturbed by obstructions, lying in the eddies formed by boulders, etc., but if the water's surface is disturbed by winds, as is usual at that season, they are taken about as readily in mid-current, where the water is from two to three or four feet deep, and running over a pebbly bottom.

In lakes, cast from a boat in-shore, or fish from the banks. Where lilypads line the shore, if you have no boat or raft, wade out so that you can cast just beyond the edge of the pads.

If trolling from a canoe or light craft, a two-knot breeze will drive the canoe with sufficient rapidity to prevent the necessity of using oars or paddles, and increasing one's chances of success in raising the fish, as there is no disturbance of the water, and a shorter line can be used. Ordinarily one hundred feet are required. Trolling should be done along shore, and fish are most likely to be raised when the spoon passes over a reef or bunch of rocks. In swift running water, or in the quick currents that flow between islands lying close to each other, as in the St. Lawrence River, one can fish from boat or shore; and the best method is probably to anchor the boat in mid current at the head of the race, and gradually drop it down as the ground becomes fished over. In minnow fishing give the bait plenty of play, but let the running water do this as much as it will, while the tip of the rod guides it to all parts of the ground to be fished over.

Valued as the brook trout is for its game qualities; widely distributed as it is; and much extolled in song as it has been; the black bass has now a wider range (at least of latitude) and being common to both cold and warm waters, and to northern and southern climes, seems destined to become the leading game fish of America, and to take the place of the wild brook trout which van-

ishes like the aborigines before civilization and settlements. It is worthy of much attention therefore; and during the past two years its habits have been diligently studied by naturalists and fish propagators, until they have become pretty well known. [See Southern and Western Fishes.]

Sunfish; Pond-fish; Pumpkin-seed; Kiver; Sunny; Roach; Bream—*Pomotis vulgaris*.—De Kay.

This beautiful fish is common in all the waters of the north. Its range extends to Georgia. In color it is a greenish brown on the back, greenish yellow on the sides. On the posterior prolongation of the opercle is a black spot, terminating behind in bright scarlet. It is found in still waters in company with perch, swims low, and takes bait with such persistence as to be an annoyance to the angler when better fish are sought. He will also take the fly, or any moving thing. It is an excellent pan fish when it attains the size of a pound, as it occasionally does. It should be fished for with light tackle and very small hooks.

SILURIDÆ.

The Catfish or Cat Family comprises a dozen or more varieties, most of which are not worth mentioning in their relations to the angler.

The Great Lake Catfish (*Pimoledus nigricans*) grows to a great weight, often reaching eighty pounds. Its general color is olive brown. It is not generally esteemed as food, although it is much eaten, and by some persons well recommended. Like most of its congeners, it prefers the mud.

The Common Cat (*Pimoledus catus*), the Bullhead, Horn Pout, Bull Pout, or Minister, has a wide range, and too great a notoriety for his worth. Its color is dusky. Is caught from first of April, throughout the summer, with most any kind of meat or worm bait, in ponds or lakes where the bottom is muddy. Many people eat them and like them.

The Channel Catfish is the best of his tribe, and is generally found in clear pure streams in the Middle and Southern States. He is of a clean greyish blue color, and makes some sport on the

hook. A good table fish. Night fishing with a lantern or torch is the most successful for all kinds of catfish.

THE CYPRINIDÆ.

The family of Cyprinidæ is a very large one, and includes the carp, sucker, dace, chub sucker, mullet sucker, and many other species which are found scattered all over the country from New England to Arizona; being often the only inhabitants of waters too warm or muddy for the more esteemed varieties of fishes. Scarcely any of them merit attention as game fish, although some are quite edible, and a few afford fair sport to the angler.

The Cyprinidæ also include the shiners, minnows, killifish, and other small fry that are much valued as baitfish, and readily command a cent a-piece in many known angling resorts. Their economic value to the fisherman is therefore considerable, and it is well to know that they may be caught either with gauze or mosquito nets along the margins of still waters where they congregate in large numbers, being often found in company with the perch, roach and bass. They are also caught with minute hooks and linen thread, with bread dough, and red worms as bait.

Some of the suckers of which there are many varieties, afford much sport when snared. The snare is a running loop of fine brass wire attached to the end of a pole, and the method employed to capture the fish is, to beat the water with long sticks, turning up logs and large stones, tossing stones into the holes, et cetera, so as to drive the fish from under the banks and other hiding places into the mid-stream, where they can be readily seen. They will lie quietly on the bottom for awhile after being disturbed, and then the snarer passes the wire loop cautiously over their heads, and dexterously jerks them out to terra firma. Sometimes the suckers will take the baited hook, though very seldom. No less than twelve varieties of suckers are enumerated as belonging to northern waters, averaging a foot in length; the most prominent of which the Mullet Sucker, *Catostomus aureatus*, grows to a length of eighteen inches. It is very common in Lake Erie, where it is severally called the Mullet, Golden Mullet, and Red Horse. There is also a common species in Lake Erie, very black in color, which is called the Black Sucker and the Shoemaker. The

Horned Sucker (*Catostomus tuberculatus*) is common in most of the fresh water streams of the Middle States and New England, where it is known under the popular names of barbel, dace, and horned dace. It takes a hook readily, and begins to bite in April. Some suckers seem to be peculiar to certain localities, showing quite distinctive characteristics as to color and size. The Oneida Lake sucker is a bluish brown fish on the back; lighter beneath; a much lighter colored fish is very abundant around Peekskill on the Hudson; and others in the Mohawk and Susquehanna Rivers show like variations in color. The White Dace or Shiner (*Leuciscus nitidus*) is quite common also. It is a large scaled fish, silvery white, and is taken with hook very often in New England trout streams.

THE COMMON CARP. *Cyprinus carpio.*—Linn.

The common carp was first introduced into this country from France in the year 1832, by Captain Henry Robinson, owner of a Havre packet. They were first placed in a pond near Newburgh, on the Hudson, and afterward introduced into the Hudson, where they multiplied very rapidly, and have since been introduced into the Southern States, over which they have spread quite generally. They have also been introduced into California from Germany, a superior variety having been planted there in 1870, and propagated by Mr. Poppe. They are also propagated artificially at Woodville, Mississippi, and at Druid Hill Park, in Baltimore.

The German variety is much esteemed as food. Indeed, there are several varieties scattered throughout the country. They are taken readily with the hook when baited with bread pills. They spawn twice a year, first about the middle of May, and again in June (in New York State), depositing their ova in the grass along the margins of ponds.

Color golden olive. Length six to twelve inches. [See Southern Inland Fishes.]

ESOCIDÆ.

MUSKELLUNGE; mascalonge; maskinongé.—*Esox nobilior.*—Thompson. *Esox estor.*—Le Sueur.

This fish is known in the laws of Canada as the "Maskinongé," from the Chippewa word maskanonje, meaning long nose; but in

the States it is called "mascalonge," from the French *masque* and *allonge*, (elongated,) longface. . The northern pike, first described by Agassiz, is sometimes confounded with this fish, but may be easily detected, as it has the lower jaw *filled* with teeth, whereas the anterior half of the maskinonge is toothless. Some people call it an overgrown pickerel, which is a still worse insult to his nobility. As we contemplate his beautiful proportions, his peculiar whitish complexion, and his massive and not greatly elongated head, we wonder how anglers could ever confound him with the green, alligator-headed pike. Surely those who have ever compared the two together, or eaten of their flesh, could not make this error. However, if there is difficulty in classifying the mascalonge, there is equal confusion among the savans in naming him, for Agassiz and Lesueur call him *esox estor*, while Thompson and Gill insist that he is *esox nobilior*. If there be anything in a name, the latter fits him best, for in beauty of form, in game qualities, and in excellence of flesh, he stands at the head of the family; besides, he is the Goliath among them all. For some reason unexplained, unless it be by reason of his nobility, he is a rare fish. In the St. Lawrence, at the Thousand Islands, in the Great Lakes, and in the Upper Mississippi, waters celebrated for the mascalonge, one will not kill more than one of these to a hundred pickerel. Sometimes they grow to an immense size. The largest we have ever heard of is vouched for by Samuel C. Clarke, who says that in 1840 he saw one at the mouth of the Calumet River, Michigan, which had just been captured in a seine, that was six feet long and weighed eighty pounds. The mouth would have admitted a man's leg; it showed a perfect *chevaux de frise* of teeth, the canines at least an inch long! It is almost black on the back, greyish-yellow on the sides, and creamy white beneath, while the whole body is beautiful with a wavy shading together of these tints. Its weight and size are often colossal for a fresh water game fish. It is long, slim, strong, and swift, and in every way formed for the life it leads—that of a fierce and dauntless marauder.

Mr. Irving L. Beman, in *Forest and Stream*, gives the following sketch of the mascalonge, which is by long odds the best that we ever saw published:—"It is difficult to imagine a more ferocious

looking creature than a forty pound pike, (?) with his scaly, snakish hide, his long, wedge-shaped head, and his nose seemingly fashioned to be thrust into other fishes' business, his under jaw projecting and revealing a fearful equipment of teeth, making his mouth as dangerous as a wolf's, his fins all a-quiver with excitement, and his eyes glaring like a fiend's as he lurks in his lair among the weeds to spring upon his prey.

"As a specimen of the greed of the mascalonge, was one I caught weighing only five pounds, but from whose maw I took fourteen small fish of his own kind, some of which were still alive, besides several of other species. At another time a gentleman and myself were "skittering," as fishermen call it, along the banks of a deep still pond noted for its pike. Skittering, one of the best methods for taking mascalonge, is done with a long elastic rod, reel and line to match the game, and hook of formidable size, upon which is impaled a minnow of from seven to fifteen inches in length. The minnow is twitched along through the water near the surface with a motion suggestive of the word skittering. Upon my friend's hook was a minnow eight or nine inches in length, with which he struck a small pike. As he was about taking the game from the water another and larger mascalonge made a rush for it, and taking it in his mouth retired to deep water to gorge it. After a few minutes the exciting sport of playing this second pike commenced, and within half an hour my friend landed him safe and sure. He proved to be a twenty-five pounder; in his throat was the smaller one, weighing three pounds, and in the throat of this latter was the minnow. Rapacity incarnate!

"But account has not yet been taken of the amazing strength of the mascalonge. I have hooked and helped to haul on deck sharks of various sizes, have had a hand at every variety of mackerel, have tusseled with the salmon, but in proportion to size this pike far surpasses them all in ability to test the fisherman's muscle, skill, coolness, and fertility of device. A mascalonge of six pounds weight is equal in gamy qualities to a salmon of twenty. He can snap a larger hook or part a stronger line and escape where a salmon would be secure. He can swim faster, whirl quicker, pull harder, leap higher, and show more fight and more cunning.

"On one excursion, with a boy of fourteen to row for me, I had the misfortune to run a very large mascalonge into shallow water on a mud flat, and when my boat ran aground I expected to lose him. But while I was desperately working my ingenuity to bag him, the boy made for him by wading. He took the gaff and succeeded in hooking the fish securely through the nose. And then commenced the most amusing squabble between denizens of land and water that I ever saw. Some of the time it was quite a question which was game, boy or fish; and had the pike run for deep water he might have bagged the boy for his dinner. At length, however, the struggle closed by the water becoming so muddy as to suffocate the fish. Upon getting him into the boat, I was not surprised at the fight he had made, for he measured five feet and two inches in length, and weighed forty pounds.

"It is not unusual for this monarch of the streams, when trying to free himself from a hook, to leap ten or fifteen feet above the water and shake his head like a mad bull. He always dies game. To illustrate his courage, I may relate the fate of the only landing net I ever undertook to use in capturing mascalonge. I was trolling along a channel where the pike resorted to waylay the small fry running back and forth between two parts of a small lake, a trick which this fish understands as well as the panther lying in wait along a path frequented by deer. At length I hooked an old patriarch, and expected to show him the courtesy of my new net, but he had no notion of passively surrendering. For nearly an hour he tried every artifice known to his tribe, but finally became exhausted, and I reeled him alongside while my man held the net. But as he saw the fatal circle he sprang forward, caught the netting in his powerful jaws, and began to jerk and shake his head in such a fury that he instantly tore out his mouthful; then he took another hold and served it in the same way, until, in less time than it takes to tell it, my beautiful landing net was a complete wreck. In the meantime, however, I inserted my gaff in his jaw, and in a moment his enraged majesty floundered in the boat. This was one of the trophies of trolling, a most pleasant method of hunting the mascalonge. The best trolling apparatus consists of three large hooks, strung one above another about six inches apart on an exceedingly strong, wire-wound snell. Sixty to seventy-five feet of

line is generally enough to let out, as the pike is not so chary of the passing skiff as are more timid fish, and with much greater length of line no fisherman can capture his game. The oarsman should pull ahead at a fair rate, ready at the instant of hooking a fish to double the speed, for such is the only way to get and keep the advantage of a mascalonge. A large minnow is the most successful trolling decoy, as the game seems to detect an ordinary spoon at a glance. And when the fish is reeled in, let no flourishes be made with oars or gaff handle, but be cautious, or the pike will free himself and escape at the last moment. In many parts where this fish abounds the spear and seine have been illegally used to capture him, but not very successfully, as he is too cunning and resolute to be caught thus. I saw a seine drawn five times one afternoon in a wide pool below a dam, where several large pike were known to lurk, but nothing was taken. Neither could the failure be accounted for, as the fish did not, as frequently is the case, leap over, break through, or run around the net. To solve the riddle, I entered a small skiff, and tying it to one of the seine floats was quietly drawn across the pool, lying with my face over the gunnel in order to look into the water beneath. What was my surprise to see the pike turn their noses to the seine and plow under it in the sand, thus defying the effort to capture them.

"Shooting this noble fish as he seeks the surface to sun himself is a favorite sport with some, but it requires a peculiar man to succeed. He must be not only a good rifle shot, but a patient, cunning, cat-like hunter, for his game is exceedingly wary. Such a man, if he can find a convenient tree or cliff overlooking the haunts of the mascalonge, may, after hours of watching, be rewarded by a shot at one of the giants of the species, for it is generally only the largest that roll up in the sunshine.

"One morning I filled my lunch basket, and had a man row me over to a pile that stood some twelve feet above water and about six rods from shore, the only one left of an ancient dock. Scrambling to the top, I drew up by a cord hammer, nails, and four or five stiff barrel staves, with which I fashioned a support for my back, as I should sit on top of the pile. Then I drew up lunch and rifle, and the man left me "alone in my glory." It was a hot day in June, and before noon, not having had a glimpse of game, I began

to be discouraged. But I had been bantered with the prediction that I would give up at dinner time, and so for mere pluck's sake I stood to, or rather sat upon, my post. At noon I ate my lunch, and having some bits left cast them lazily down on the water. Very soon, and unexpectedly, there was a break in the surface, and an enormous mascalonge showed his full length near a bread crust. While he was studying the looks of the crust I gave him the compliments of my rifle. Instantly upon his beginning to flurry, there appeared around him a number of others, all large, and for a moment they waged a fierce attack upon their wounded fellow; but when I had loaded and discharged my gun again they disappeared. By this time my man in the skiff came up, and after picking up the two fish received me also, and I rested upon my honors the balance of the day. The first of these two pike was the one alluded to above, weighing fifty-one pounds. But though I perched on that pile several times afterward, like a hawk where he once caught a chicken, I never had another shot from my eyrie.

"Still-baiting for this fish is not as successful as for the glass-eyed pike and pickerel. Only the smaller ones are generally caught thus, the larger requiring more action in the bait in order to challenge their speed and pugnacity, and induce them to bite.

"Fishing through the ice is an interesting method of taking our game. But it is like pickerel ice fishing, in which a hook baited with a small minnow is cast through a hole and the other end of the line tied to a twig stuck in the snow. Such a mode would avail for mascalonge about as a mouse trap for a wolf. A hole two feet across is cut through the ice, and above it is erected a close tent or cabin to shut out the light. The fisherman seats himself so as to conveniently look and use the gaff through the hole, and find the water clear below while he is in the dark above. Both the gaff and a silver decoy, attached to a wire three feet long, are lowered into the water. The former is held motionless in the right hand, while with the other hand the decoy is moved around as if it were a real minnow. When the pike discovers the decoy, he slowly and threateningly glides forward to investigate. The fisherman will discover him when several feet distant, and here is where the excitement begins. He steals along like an Argus, now straight on, now sidewise, stopping every few inches to take notes, rapacity

and craftiness evinced in his appearance as clearly as in any other member of the animal kingdom. At length he is within reach of the gaff, and the silent and excited man of the tent, with skill and muscle, snatches the fishy prowler from his native element.

"As a food fish there is nothing superior to this. He ranks with the salmon and speckled trout, and surpasses the black and striped bass. The meat is almost as white as snow, fine grained, nicely laminated, and the flavor is perfect."

Besides the waters of the basin of the Great Lakes and of the St. Lawrence, the interior lakes of Ontario, Canada, are abundantly supplied with mascalonge, notably Rice Lake and the lakes of the Muskoka region. Probably they are more numerous in the last-named waters than in any others of America.

THE PIKE.—*Esox lucius.*—Linn.

The Northern pike is found in the St. Lawrence River, and in the larger inland lakes of the Northern and Western States. It is often caught in the same waters and on the same grounds as the mascalonge, from which it is readily distinguished by its general shape, the shape of its head, its teeth, its color, and superficial markings. Its back and head are of very dark green or greenish black; its sides in some waters are of a dull olive green, shading to white on the belly, and in others of the intensest vivid green and gold. Fins greenish; those below tinged with red. Its sides are marked by irregular longitudinal dusky streaks. It is distinguished by its alligator head and projecting lower jaw. It grows to the length of three feet and more, though never attaining to the gigantic weight and size of the mascalonge, and affords excellent sport to the angler. It is taken by trolling along the margins of weeds that border the lakes and rivers, and often in deep water; by skittering with frog, minnow, or pork bait; and by still-fishing. It is apt to resort to the vicinity of logs and fallen trees, where it is most certainly taken. Fishing with jugs and "bobbers" is a rather exciting sport, though hardly sportsmanlike. The method is as follows:

Being provided with a dozen or so of empty bottles—champagne or claret the best—cork them tightly and fasten a line of suitable strength to the neck of each, winding the spare line upon

it, leaving enough free that the hook may clear the weeds and bottom of the lake or pond where used; cork and throw bottles and bait overboard on the windward side of the proposed fishing ground. Off go the bottles, "bobbin' round," every ripple keeping things lively. Presently a big pike or bass takes a pull at the bottle, frees the line from the cork and sets things spinning. Round and round whirls the bottle till the spare line is paid out; then dips, bobs, plunges, now under, now out, and always keeping a taut line on the "bottle-holder" below. Of course you go for it and generally the fish comes up well "tucker'd out," as the saying is. With a dozen or so of these new fangled trimmers afloat, and plenty of game fish about, this is a lively style of fishing; and though it lacks the nice dexterity of the light rod and fine tackle that makes bass fishing so enticing, it has the merit of spreading over a good deal of ground and putting the bait a great distance from the boat.

Fishing through the ice is a pastime that serves to vary the monotony of a long and dreary winter, and when the ice is smooth and in good condition for skating, is really enjoyable. With a large bright fire blazing on the ice near at hand, and the body glowing delightfully with vigorous and not too violent exercise, it is exhilarating sport to "tend" the scattered tilts and tip-ups when the fish bite freely. With the blood in freest circulation, one scarcely feels the cold of the freezing water on his hands, and when he has unhooked his fish and tossed it toward the stiff and rigid pile already caught, he cheerily gives his arms a thresh to quicken the warmth, and darts away to obey the signal that another fish has struck. When the day is calm and without wind, one can get as much *amusement* out of this pastime as he ever can with his salmon rod and reel. The simplest kind of a tilt is a lath or narrow piece of board, with a hole bored through one end, through which a round stick is run with both ends resting on the sides of the hole in the ice. The line and bait are attached to the short end of the tilt, and when the fish is on his weight tips up the longer end and gives the signal that he is caught. There is an improved tilt which consists of an upright and an arm, the line passing over the end of the latter down into the water. When a fish bites, the line is cast off, the arm falls, and at the same time

automatically hoists a little signal flag on the upright. Another contrivance is to plant supple saplings at the sides of the fishing holes, and when the fish is on he is detected either by the motion of the sapling or by its being bent low by dead weight.

Spearing pike in winter is an entertaining pastime much in vogue. By inverting a sugar hogshead over a hole already cut in the ice, one can see plainly the minutest pebble on the bottom twenty feet below. An artificial minnow attached to a yard of line made fast to a short stick serves as bait, and when lowered into the water through the hole, and skillfully played, attracts the fish very readily. As the fish approaches the bait, have ready a spear, and strike. Practice will make one dexterous. The spear-head should be made to detach itself from the handle when the fish is struck, the same being held by a line to which it is fast, instead of by the handle, so that the fish is played or hauled in by the line and not by the handle, the latter being used merely to effect and give force to the blow. The line to which the spear-head is fastened, should also be fast to the handle, and should not be less than twenty yards in length. The pike should not be confounded with the pickerel, which is quite a different species, and hardly worth the attention of the angler. It can readily be distinguished from the mascalonge by its dental system, its lower jaw being filled with teeth, while the anterior half of the mascalonge is toothless. Spawns in spring. Best fishing is in mid-summer.

POND PICKEREL.—Doree (Canada); *Esox reticulatus*.—Lesueur.

The common pond pickerel thrives wherever he can get a foothold, and is found in nearly all the ponds and streams of the north that have not been jealously guarded against his intrusion. He seldom attains the weight of a pound, and is caught very readily with a red ibis fly on a light rod, affording a very fair amount of sport, but he is so bony and so small that he is hardly worth cooking when caught. His back is of a greenish grey, sides yellowish green, reticulated with oblong irregular markings, fins of a deep yellow or red color. Spawns in March and April.

In Lake Champlain is a pickerel that seldom exceeds seven inches in length, found in schools in great numbers, and known as *E. fasciatus*; a very beautiful fish with back of olive brown,

sides deepening to yellow, with vertical brown stripes on its sides; fins light yellow.

THE SALMONIDÆ.

COMMON SPECKLED TROUT, or BROOK TROUT.—*Salmo fontinalis*.—Mitch.

Symmetrical oblong body; back broad, with dark markings on horn-colored ground, with metallic bluish and greenish reflections in fresh specimens; sides lighter, merging into white on abdomen which shows reddish in spawning season. Upper part of head dark greenish brown, with somewhat obscure mottlings; red vermillion dots and large yellow spots in vicinity of lateral line. The pectoral or breast fins have the first ray yellow or the second black, the rest orange. The caudal or tail fin is slightly forked in the adult, more so in the young, is reddish with parallel dark bands.

The range of this well known and much valued fish, is strictly between the parallels of latitude 50° north and 36° south, though it has been taken in abundance in Labrador, in latitude 54°, and in the Apalachian mountain ranges as far south as the northern border of Georgia and South Carolina. Its northwestern limit is northern Minnesota, and it is not caught west of the Mississippi River except in a few of its Minnesota tributaries. Specimens have been taken that weighed seventeen pounds. The largest are found in Maine and in the Nepigon River, on the north shore of Lake Superior, where the specimen referred to was caught. It inhabits large lakes and the smallest ponds, the tiniest brooks and the largest rivers. [*Vide* Nepigon, which has a length of forty-five miles and a depth, in places, of one hundred and fifty feet or more.] Although a bold biter, it is a wary fish, and often requires much skill to capture it. It can be caught with artificial or natural flies, minnows, crickets, grasshoppers, grubs, the spawn of other fishes, or even the eyes or cut pieces of other trout. It spawns in the fall, and its period of spawning ranges from September to late in November. It begins to reproduce its kind when it is two years old, at which age it measures some six inches in length. In May and June the trout delight in rapids and swiftly running water, and in the hot months of mid-summer they resort to deep, cool and shaded pools. In August and September, on the approach of the spawning season, they gather around the

mouth of cool gravelly brooks, whither they resort to make their beds.

Their habits change with their age. When very young they play a great deal together, usually choosing the parts of the brook which have a muddy bottom, and will sometimes if startled, suddenly bury themselves in the mud. This, however, does not often occur; they usually make for the first little projection that juts out over the water, and there hide until the danger is over. As they grow older they seem to dissolve partnership in a great measure, and every one chooses his own particular hiding place, the larger trout taking, as if by reason of their superior strength, which to all appearance is understood among them, the deepest holes and largest projecting sods, and leaving the smaller ones for their less officious kin. The older they grow the more wary they become, and therefore it requires considerable skill to catch a very old trout. A worm is, generally speaking, the best bait for them, but in the spring, after the rains that usually prevail at that season, which wash a great many worms and insects into the water, very few of which escape their observation, they bite better at the more tempting bait of a fly. Instruction in trout fishing is not easily imparted. It must be acquired chiefly by practice and observation. The knowledge of where to fish is moreover fully as essential as the knowing how to fish. Some study of entomology is requisite at the outset. Some acquaintance with the creatures that live in the water, under the water, and over the water, and whose habits in great part govern or control the movements of the fish. We are to know that certain flies deposit their eggs on the leaves of the plants that overhang the streams; that such and such ephemera launch their floating boats of eggs upon the water itself; that certain larvæ are to be found among the weeds at the bottom. We are to know just at what locality upon the stream these are to be found, and at what month of the year they will develop into active life, because where the food is there the fish do congregate. This knowledge is important, for it enables the angler to select the choice places for his casts, and prevents waste of time in testing spots where success is improbable. Into this study of entomology also enters all the minutiæ of patterns for artificial flies, and the selection of such specimens for casts as will

correspond in a great degree with the seasons when the natural insect is abroad.

If in addition to this acquisition, we can discern the face of the sky, and study the conditions of the weather, the temperature of the air and water, the direction of the wind and clouds, the character of the streams, etc., we can reasonably determine where to fish.

Observation has taught us that warm, sluggish and turbid water is not the home of the salmonidæ. We know that they are less liable to be found in a limestone country than amid a granite formation. We find that fish don't bite after a thunderstorm, or after a flood; that after a heavy rain which washes unlimited food into the stream, trout become surfeited and indifferent to the angler's lures; that the fish are sluggish on cold, raw and blustery days, which are usually accompanied by northerly and easterly winds; that it is no time to fish when the streams are filled with snow water; that trout are most wary when the sky is cloudless; that windy weather is unfavorable for casting; that the fish dwell chiefly in those parts of the stream where the natural current carries the surface food; that the biggest fish select and occupy the best places. We know, moreover, that the conditions which apply to streams do not apply to lakes and ponds, and the rules that govern the fishing for speckled trout do not apply to salmon and other varieties of the salmo family. In ponds we must fish where we find the coldest water supplied by bottom springs; in deep channels, which are frequently indicated by the growing lily pads; where cold brooks chance to empty themselves into the main body. We do not fish where there are deposits of mud. The presence of aquatic plants indicates mud, but if there be a space of clear water it indicates gravel bottom caused by the flow of a current which has deposited the silt and vegetable matter on either hand, just as bottom lands on large rivers are formed. Sometimes, too, we find patches of a succulent vegetable growth on the bottom swarming with larvæ. If we pull up a handful we find it alive with the food that will attract the fish to the spot which the experienced angler will instinctively resort to. Neither do the same conditions apply alike to all ponds and streams; for which reason experience can only be gained by fishing over a great number of localities in as many different sections of country.

The lesson of entomology as applied to the angler's purposes has been most beautifully taught by Miss Sara J. McBride, an accomplished naturalist of Mumford, New York, in an essay once published in the *Forest and Stream* journal, which we take the liberty to transfer to these pages herewith :

" There is a large order of insects that live the first stages of life in water, where for weeks, months, in some instances years, they hide under stones; carve an abiding place in submerged driftwood ; feed on decaying vegetation in lazy inert masses ; burrow in the earth beneath the current ; weave together bits of wood, gravel, stones, and floating debris, forming retreats that surround them as they swim or daintily walk ; spin of silken thread individual domiciles that they guard from intruders with the valor of soldiers, or boldly and singly dash out in the current swimming with agile rapidity. These are all fish food. But it is only when they assume the perfect form, when they cast aside their aquatic nature, and with gossamer wings float in the air, that they are of interest to the fly-fisher—as he seeks to deceive the finny tribe with their imitations, made of feathers, tinsel and mohair. Insects are enfeebled at all changes in their life, and at each successive moult when the pupa case is broken, too weak to keep guard, they flutter and rest on the water an instant before flitting away. At this instant many are seized by the wary fish. Insects leave the water mornings and evenings, particularly the latter, rarely at midday, never during rain storms or heavy winds. It is at these times, when they are leaving the water, their imitations are used to most advantage. It is that insect floating off into a new element that the fish are watching and waiting to feed on. At other times you may cast with success your favorite 'brown hackle' with its golden ribs and steel backbone—the bland professor—the modest queen of the water, or the grizzly king with his grey locks and flaming sword. Things which resemble nothing in the heavens above, the earth beneath, or the waters under the earth : why fish take these, whether from curiosity, or by way of dessert, no one perhaps will ever know, not fully understanding the nature of the fish. But there is one thing we do know, that when the countless myriads of these tiny creatures are entering a new life in untried regions, the favorite flies

will be thrown in vain. The fish will regard with contemplative indifference every other lure but a close imitation of that particular insect.

"One evening we sat on the bank of a creek, bug net in hand, watching the trout and the birds of the air feeding on a neuropterous insect that is constantly repeating the cycle of its life,

> 'As yet unknown to fame,
> And guiltless of a Latin name.'

The stream was in eddying whirls of ripples from the constant 'leaping' of the trout. Now and then one bolder than the rest would dash out of the water its full length to seize its departing prey, which sometimes escaped to become a precious morsel in the mandibles of a watching bird. Many of these insects would float on with the current, never able to unfold their soft creamy wings, and become easy victims. On the opposite bank was an angler. For an hour in patience he whipped the stream, now up, now down, with 'red hackles,' 'white hackles,' 'black hackles;' he changed fly after fly in vain. At length he folded his rod and passed away among the shadows of the night, without so much as a bite, without so much as a chance to tell of the big fish 'hooked' but lost.

"There are many aquatic insects double brooded, or under favorable circumstances, of a succession of broods. Imitations of such can be used throughout the summer months. There are many insects that do not breed in water, yet are successful baits. As a rule, insects that appear in large numbers, whether they belong to land or water, are the proper ones for imitation. Solitary specimens, although dear to the heart of an entomologist, are eyed by the fish with haughty indifference. Water is a great attraction for all insect tribes. The banks of streams constitute the favorite hunting ground for insect collectors where they compete with the fish, those practical entomologists, in collecting. Some insects come to drink, others in search of prey, for insects are cannibals, while very many are the sport of the winds. It is probably the bright sheen of the water that draws the fluttering moths into its depths. All nocturnal insects have a strange infatuation for glistening light. What the attraction is for some is beyond the ken of mortals. A *Tipulidæ bibri marci*, or in piscatorial language, the hawthorn fly, an insect, whose life is beneath

the surface of the earth eleven months of every year, comes crawling, creeping out of the ground on warm June mornings apparelled in new livery. After resting awhile on low herbage, all, as if guided by one impulse, fly to the nearest stream. We have kept these insects for weeks in confinement, and they would neither eat nor drink. But every morning for hours they congregate over streams; keeping time with the ripple of the water, they hold a May dance; darting hither and thither, occasionally touching the water to go down with the current, or else down the throat of a fish. When these bright creatures are holding high carnival above, the trout positively refuse other enticement. The larvæ of moths is a favorite fish food, and consequently successful bait. Hibernating larvæ are drawn from their retreats in warm spring days, and continue the pilgrimage they commenced the previous fall. In their wild journeyings on and on before spinning the pupa shroud, they fall victims in attempting to cross streams. Hairy caterpillars feeding on the trees are blown off by the winds, or their silken thread is broken, as they hang under the leaves in shelter from the rain. Imitations of these known to the American by the familiar term of hackles, and to the accurate inhabitant of the British Isles by the correct name of palmers, are to be used after winds or during rain storms; also that compromise between larvæ and image known as the hackle fly. Bristling with feet its entire length, and graced with a pair of wings, it offers a double attraction to the fish. No bait has ever been used that has given the general satisfaction of this anomaly. To look at it with the eye of a naturalist one doubts the wit or wisdom of the fish that takes it, and concludes there are comparative degrees of saneness beneath the ripple of the wave. It is a common remark that fish will not 'bite' before rain. Some have accounted for it by bringing forward that common scapegoat for all unexplainable phenomena, electricity. I can't understand why fish should dread a sprinkling of rain drops. The reason probably is, that their food is never offered at such times. The natural instinct of the insect forbids their leaving the water or flying abroad if rain is threatening. The spiracles or breathing pores are situated on the outside of the body near the insertion of the wings. They are soon clogged and closed up by the water, and the down washed from their

bodies; their wings draggle and become powerless, and they suffocate flying in mid air. This is the reason winged insects on touching water drown so easily. Insects do not invariably appear at the same times. A cold spring will retard their development for months, while an unusually warm spring or summer will hasten their appearance. Insects in the water are the most afflicted by changes of temperature. Any guide for a fly-fisher would be almost useless unless this important point is remembered. English works can never become positive authorities for our climate. Insects which appear there in vast quantities are rare here, and *vice versa*. Some that are single-brooded there are double-brooded here. Some that appear there in one month visit us at another, while we have many alluring baits here that the classic waters of the British Isles would regard with bewildering amazement."

In fishing with worm for bait, it is better to choose a still, cloudy day suggesting rain, as the fish are then on the alert for insects. Begin at the head of the stream, and fish down stream, at all times keeping well back from the bank. Do not in baiting your hook, merely cover the point of your hook with the head of the worm, but put on the whole worm running the hook through him in three or four places, and then covering the point of the hook with the head of the worm. It is considered much more sportsman-like to fish with a fly, as it requires more tact; but there are times when fish will not bite at a fly, in which case it is *some sport*, although less, to use a worm. As a food fish, the trout is unsurpassed almost, the flesh being exceedingly firm and well-flavored.

BLUE-BACK TROUT.—*Salmo oquassa*.—Girard.

This species of trout is peculiar to the Rangeley Lakes of Maine, so far as is known. It was discovered by Girard in 1852. They are never seen until the tenth of October, when they swarm the different streams in countless myriads. They remain for twenty days, and then leave, returning the following year at almost the exact day, and always to the same place. The countrymen gather them by bushels and barrels, smoking and salting them for home use. They never vary in size from the uniform length of eight inches. While in general appearance they resemble the *Salmo*

fontinalis, an examination discovers their form and markings to be entirely different. Their backs are like dark blue velvet pile; sides liberally sprinkled with vermilion spots from gills to caudal fin. There is no silvery halo around the spots, as in the familiar brook trout, and the shoulders are very narrow. The flesh has a yellowish tinge, and is of not as fine flavor as that of the common trout. The best accepted authorities declare them to be a distinct species. They never take a fly, and very seldom a bait. Prof. Milner describes their specific characteristics as follows:

"The type of form in *S. oquassa* is much more slender, with a tendency in its different parts to prolongation not seen in brook trout. Thus the length of the fish, compared with the thickness, with the length of the head, the thickness of the head to the length, the pectoral fin prolonged to a slender point, the two lobes of the caudal extended in the same way, showing a decided furcation, and the opercular bones prolonged into a more acute angle.

"On the contrary, the maxillary bone extends much less far back of the position of the eye, or toward the hinder end or hinge of the lower jaw in the Oquossac trout.

"The interopercular bone is much larger in *S. oquassa* and the suboperculum is wider.

"The tail in *Salmo fontinalis* is more truncated than in any species it is likely to be confounded with. The drawings show a comparison of the caudal fin when spread and when partially closed. I think the most of these characters will be found constant."

Togue; gray trout; tuladi; lunge.—*Salmo toma*.—Hamlin.

The togue abounds in the great lakes at the sources of the St. Croix and St. John Rivers, deriving one of its local names from the Tuladi Lake and river, where it is extremely plentiful. It is found in all the larger lakes of New Brunswick and in very many of those in Maine and exceptionally few of those in Nova Scotia. It inhabits abundantly the Eagle lakes, at the head of Fish River, the St. Francis lakes, from which flows the river of that name, the Matapediac Lake at the head of that river, Lake Temiscouata, Lakes Memphremagog and Brompton, where it is known as the "lunge," the Grand lakes, and Cheputneticook lakes of the St.

Croix, Loch Lomond, near St. John, N. B., etc., etc. It grows to a great size and weight, attaining as high as forty-two pounds. It is taken by trolling with a spoon, or a "gang" of hooks baited with minnow, in the months of May and June, and later by deep trolling at a depth of seventy to one hundred feet. In October it can also be taken with a troll when it resorts to sandy or pebbly bars, at the outlets of the lakes to spawn, and is then speared in great numbers. Seth Green, in a carefully prepared paper addressed to the "*Forest and Stream*," has given the following minute directions for angling for these fish, which methods apply alike to other (supposed) varieties, to be enumerated hereafter:

"They are taken with silver and brass spoon hooks, by leading the line so that the spoon runs near the bottom. But they are taken sometimes at the top of the water and sometimes half way down from the surface, and by trolling with three lines at one time—one at the surface, one half way down and one near the bottom. Another way is to anchor a buoy out in deep water and cut fish in pieces, varying in size from a hickory-nut to a butternut, and scattering the pieces around the buoy for some days; then anchor your boat to the buoy, using a piece of the same kind of bait on your hook that you had been in the habit of scattering around your buoy; fish near the bottom and give it a little motion by giving your line short jerks. The buoy should not be baited the day you go fishing.

"Another way is to have a rod and reel and four or five hundred feet of fine strong line, and if the water is deep put a lead sinker weighing three-quarters of a pound on the end of your line, and tie a single gut leader twelve feet long on the main line twelve feet above your sinker. For hooks, you should use nine number six Limerick hooks, tied three together, back to back, so that they look like a three-pronged grappel. Tie them on a single gut leader, about two and one-half inches apart, and you have a gang of hooks five inches long. Put two very small brass swivels on your leader. Use the kind of small fish for bait that the trout are used to eating in your lake. Hook one of the upper hooks through the under and upper jaw so that his mouth will be closed. Then hook one of the lower hooks through the back near the tail in such

a manner that it will give the fish a curve and will turn around like a trolling-spoon when it is drawn through the water. The most successful fishermen use three of this same kind of rigs in one boat; they fish one rig near the top with a light sinker, say four ounces, and one about half way down with an eight ounce sinker and the twelve ounce sinker near the bottom. This is the most successful rig I have ever used. The boat should be rowed very slow, so that you can feel the bottom with the heavy sinker nearly every time you raise it up and let it down. The bait should be raised up and down by a gentle motion, set the other two lines, one on each side of the boat, and they will take care of themselves. Live fish should be used for bait. Some do not use but eight hooks, one hook for the upper to hook in the minnow's mouth and one to hook through the back near the tail, and two sets of three each between the two single hooks tied about one and a half inches apart. Be careful and keep your minnow looking as natural as possible. Do not rub any more scales off than you can help. When you let your line out your boat should be in motion to keep your bait from twisting around the main line."

Togue are extremely voracious, and will often seize the bait repeatedly after having been insecurely hooked. The young fish rise freely to trout flies in rapid water, though few are taken in this way that exceed three pounds in weight.

When in perfect condition it bears a close resemblance to a full grown salmon, though it is more chunky; lacking its symmetrical lines. A rich pearly lustre covers the ventral regions, deepening into russet toward the lateral line; above which the color appears of a deep mottled grey, deepening into blue or purplish brown on the back. The body is covered with spots and markings of a lighter sienna color, circular, without being ocellate, varying according to the seasons and local influences, being brighter at the spawning periods than at other times. The fins are of a yellowish or orange hue below; the dorsal of a dark grey. The tail is long, broad, and deeply forked; the flesh of a pale yellow. Its form indicates great strength and swiftness, although it has the reputation of being slow and sluggish. Its jaws and tongue are armed with conical and inflected teeth.

It preys extensively on eels and cyprinids, and nothing that it

can swallow seems to come amiss. It is often found gorged with small fish.

When boiled it is an excellent dish, though lacking in high flavor. The points of difference between it and varieties to be named subsequently, are such that best authorities are divided in opinion as to whether there is one or several species. As regards Lake Memphremagog and the Brompton Lakes, the problem in itself is sufficiently puzzling. Here the grey trout are locally known as "lunge," having been adopted from the St. Francis Indians who formerly hunted and fished around these lakes. But there is not only one variety of lunge, but several, and these are known as the black lunge, the silver lunge and the racer lunge, all of which we have seen, and are able to vouch for their striking points of difference in color and habits. Mr. N. P. Leach, of Montreal, who is familiar with Canadian waters, wrote us May 9th, 1876, the following note in reply to ours asking him for specific information on this interesting subject:

"I received to-day a couple of lunge from Mr. Hubbard, of the Parks House, Magog. They were caught in the lake near his hotel. One was a fine specimen of the dark copper or black lunge, the other was a small, five-pound silver lunge. The black lunge corresponds to the minutest particular with De Kay's *Salmo confinis*, and the silver lunge answers well to the description of the *Salmo naymachus* by Richardson. It might be taken for the *Salmo adirondakus nobis*, of Norris' "American Angler's Book," but that the *Salmo adirondakus*, if described accurately in Norris' book, has no teeth on the vomer, while the specimen before me has quite a number of teeth there. In regard to classifying the different species or varieties of *Salmonidæ* that are found in the eastern township waters, I know of no one that has done this, and feel very diffident about attempting it myself, though I will endeavor to get specimens from the various waters there, and with the assistance of Mr. J. Whiteaves of the Natural History Society here, I will prepare an article for you."

We regret to say that we have waited in vain for the light which we anticipated Mr. Whiteaves would shed, and our readers are by so much the losers. We can add nothing more to the above. In addition to these apparent varieties, there is still another in

Lake Massiwippi, in the Province of Quebec, some forty miles distant, called the black salmon. We believe however, that the characteristics of the several varieties named are less positive than those that distinguish the *Salmo fontinalis* from the *S. immaculatus*.

SALMON TROUT; lake trout; red trout; lake salmon.—*Salmo confinis*.—De Kay. *Salmo adirondakus*.—Norris.

This trout undoubtedly possesses characteristics (specific?) and habits very different from the togue or grey trout of Maine and New Brunswick. It does not attain the immense size of the togue, its average weight being scarcely more than six pounds, though we have ourselves seen a specimen that weighed sixteen pounds, and heard of others that would hold several pounds over this. Its natural habitat is the lakes of New York State and the adjoining waters of Pennsylvania and Canada, though much restricted in the first-named; and were not found outside thereof until their comparatively very recent distribution by Fish Commissioners throughout the clear and cold waters of nearly all the Northern States. Both this fish and the *Salmo namaycush* or Mackinaw trout of the Great Lakes are thus employed for propagation with equal success. The salmon trout is now becoming well-known, and will doubtless hereafter occupy and thrive in most of the waters where it has been placed and adopted. It takes the troll readily in June, and is often caught with fly at the outlets of the Adirondack lakes, notably at Bartlett's dam, outlet of the Lower Saranac. In Hamilton County it is known as the Red Trout, which latter, at a period not remote, was supposed to be a distinct variety of trout, its markings being different in many respects,—its drab color tinged with pink, and its spots smaller and of a deeper orange. There are marked peculiarities of the lake trout in other waters of New York than these; as for instance, in Seneca Lake they will not take troll or fly, but in Crooked Lake, immediately adjoining it, they are constantly taken with the hook. In Lakes Winnipissiogee and Monadnock, in New Hampshire, there is a trout so different from other recognized species that its individuality is admitted by scientists. It is known as the *Salmo symmetrica*. Its form is slender, symmetrical; that of the *confinis* is thicker and shorter.

There is a marked difference in the dental systems, and in the colors of body and fins. The *confinis*, when first caught, is of a bluish-black on sides and body; white below; sides of head and body, base of first dorsal, caudal and anal fins crowded with numerous rounded, irregular grey spots. The *symmetrica* is light to dark brown on back and head; sides dark grey above lateral line, and light salmon below; pectoral and ventrals grey. The whole fish, including fins, is thickly sprinkled with small circular spots of a drab color on sides, olive on back approaching to light salmon below. They are caught in great abundance with the hook in winter, through the ice, and are highly esteemed for the table. It is hardly worth while in this work, to educe arguments to convince the skeptical; our readers will not care much whether there is one species or a dozen, if so be that they only bite well.

LANDLOCKED SALMON; wininnish, or ouininnish; Sebago Trout.—*Salmo sebago*; the young fish *gloveri*.—Girard.

Much needless speculation has been indulged in during the past twenty years, and much discussion excited, as to whether this fish was a true salmon, which having been to the sea, preferred not to go there; or that, being a true salmon, and debarred from the sea, he chose like a sensible fellow to content himself in fresh water; or that by some mischances, he had become "degenerate" in size, beauty, and succulency, and unworthy of his regal progenitors; or whether he was not, after all, truly a variety of lake trout. So much speculation, we repeat, has been indulged in, that it would be a waste of our space to review the *pros* and *cons* of the argument, suffice to say that one most excellent authority, Dr. A. C. Hamlin, pronounces it identical with the sea salmon, and exhibiting no radical differences, except in the one peculiarity that it does not go to salt water. The bony structure and its fin system are precisely the same as those of *salmo salar*. Therefore we are at liberty to call it a salmon.

And yet, if we examine its fin system and compare it with that of the togue, we find that the two formulæ vary but slightly: which see:

Landlocked salmon—Br. 12; P. 15; V. 9; A. 10; D. 12; C. 19. Togue Br. 12; P. 12–13; V. 9; A. 11–12; D. 13; C. 19.

Now, as greater variations are found in lake trout which are declared to be identical species, we are equally at liberty to call the *Salmo sebago* a lake trout, or "sebago trout," as some name it. We leave it to those who pay their money, to take their choice, and herewith dismiss the subject. Either conclusion is favored by the facts of its biographical history. Within two years we have taken this fish in Canada where there were no obstructions to its passage to the sea; and twenty-five years ago we took the same fish in Maine, where obstructions did not then exist, but now do. The argument as to its involuntary restriction to fresh water therefore has no weight. It would not go to the sea if it could; it will not when it can.

While its localities are strangely circumscribed, its geographical area or habitat is certainly not very limited. It is found in Loch Lomond, New Brunswick; in the Grand Lakes of the St. Croix River, in Union River, and in Sebago Lake, in the southern part of Maine; in the Sebec Lake and Reed's Pond, near Ellsworth, in Central Maine; in the Stony Lake Chain, Peterborough County, Ontario, Canada, some eighty miles north of Lake Ontario; and in Lake St. John, headwaters of the Saguenay, Province of Quebec, where it is locally known as the Wininnish or Ouininnish. It will thus be seen that its range extends over a territory of some three hundred miles square, in which the conditions of its existence vary very much. To particularize: In the Maine and New Brunswick waters its passage to the salt water is obstructed by dams; in Ontario, Canada, it has indirect but free access to the sea via Lake Ontario and the St. Lawrence River; and in the Saguenay it has short, easy, and direct access to salt water, without any obstruction whatever.

As to size, the landlocked salmon vary. In most of the Maine lakes they run from two to four or five pounds, sometimes, however, being taken weighing from ten to fifteen pounds. The Sebago fish, however, is much larger, the mature fish averaging perhaps six to eight pounds. In the upper Saguenay they run about four pounds average, and seldom exceed seven pounds, while in the Stony Lake region, in Ontario, we have seen specimens as heavy as twenty pounds, a photograph of which is in our possession. They are invariably taken in the swift current below the

dams or rapids, as soon as ever the ice breaks up in spring. We have seen a Sebec specimen caught April twenty-first. The Stony Lake and St. Croix fishing is best in May; while in the Saguenay it is at its prime in the middle of June. In the autumn they again pass up the rivers and are taken with the fly; remaining in the clear streams until the spawning season is passed, or until November. While the landlocked salmon is as capricious as others of the Salmonidæ, there are some patterns of artificial flies that seem to suit it best, viz.; a deep yellow fly, both body and wings; a fly with black wings and yellow body; a grey fly; a red body and grey hackle; brown wings and black body; these are the best colors, the yellow and black prevailing.

As a game fish, it is hardly equalled except by the true salmon. Its strength and agility are surprising. When hooked it will frequently make a succession of leaps, two or three feet clear of the water. When the evening is calm and tranquil, after a warm day or a stormy period, it is the best time to cast the fly. At this hour the fish emerge from their cool places of concealment, where repose has sharpened their appetites, and they pursue with avidity the insects that sport near the surface of the stream, or the little minnows which venture from their safe places on the shallows.

The differences in color between the lake and migratory salmon are not great, and color is not regarded as of any importance in relation to specific character. The sea salmon has a more silvery lustre. Colorings depend upon food and locality, as well as upon age, season and the purity of the water. The young landlocked salmon, termed *salmo gloveri*, have a few small reddish orange dots in the middle of the black spots, which are wanting in the adults.

For some time the wininnish was regarded as a distinct variety of fish. Upon this point the following letter will be considered conclusive:

CALAIS, Me., Sept. 8th, 1875.

Chas. Hallock, Esq:

I have compared the wininnish of the Saguenay with the landlocked salmon of Maine, *salmo gloveri*, and think them the same. Some years ago, some of the Saguenay fish were sent to Cambridge. Prof. Agassiz, Mr. Putnam and myself compared them, and Agassiz thought them the same. I have no doubt that the

salmo glowerí is quite common in most of the rivers about the Bay of Fundy, as well as along the State of Maine, and when taken have been called the young of the sea salmon. Unless you have both to compare, it is not easy to tell the difference. They have been examined as to all their measurements so scientifically, their markings, etc., which I have no doubt you have seen, that it is not hard to tell the *S. glowerí* from the true salmon. The number of vertebræ differ—fifty-nine in the salmon to fifty-seven in *S. glowerí*, a double row of small teeth in the vomer of the young salmon, a single row in the smolt of the *glowerí*. Some of our English fishermen thought our fish the same as the European *S. trutta* and *S. cambricas*. Some specimens were sent to Dr. Guenther, F. R. S., of England, who pronounced them different, and nothing to do with the sea salmon. I do not understand how they ever got the name landlocked salmon, as they always had access to the sea, and in my boy days *S. glowerí* was common to the tide waters, and more often taken as far down as there were fish weirs. They have been identified in several of our Maine rivers, also in Loch Lomond and Mespeck, N. B., in Nova Scotia, in St. John's Lake, Grand Lake, Salmon River, and Pockwock Lake, and I have no doubt it will be found in many of the rivers of clear water coming into the St. Lawrence, and when caught are called young salmon. I have seen specimens of *S. glowerí* caught on our rivers that weighed ten to twelve pounds. The large fish seldom take fly or bait, but keep in the deep water.

GEO. A. BOARDMAN.

GRAYLING; Spearing.—*Thymallus ontariensis*.—Cuv. and Val.

Specimens of this fish have been taken from waters adjacent to Lake Ontario; in a stream near Quebec, where it has the local name of "spearing;" in Vermont, near the Derby line; and in a stream at the head-waters of the Penobscot River in Maine. The identity of this fish, which some have doubted, can be readily authenticated. Its habits are the same as those of the Western grayling elsewhere described.

WHITEFISH; Gizzard fish; Shad.—*Coregonus labradoricus*.—Richardson.

This fish is taken in the St. Lawrence River, and much resembles the *C. albus*. The two species are widely distributed throughout Canada and the Northern States, varying considerably in size and shape in different waters, and differing in quality of their flesh. They are found in Lakes Ontario, Erie and Champlain, in the Adirondack lakes and the interior lakes of New York; in-

deed, they are said to inhabit all the interior lakes of America from Lake Erie to the Arctic Sea. The whitefish abounds in all the Eagle Lakes, at the head of Fish River, in Maine, which is a tributary of the St. John; in the St. Francis Lakes, at the stream's head; in Lake Temiscouata, in Canada (P. Q.); and in the Madawaska, Restigouche and various other rivers, where it is netted and speared by the Indians. It is known to the Canadian voyageurs as the "gizzard fish," its stomach much resembling the gizzard of a fowl. Charles Lanman, Esq., of Georgetown, D. C., has published an interesting paper on the whitefish of Maine and New Brunswick, describing their habits, in which he speaks of having frequently taken them with rod and line; as has also the writer of this paper. They are most abundant in July and the first part of August, and are then often taken in Lake Champlain with a natural fly, locally known as the shad-fly, the fish themselves being called shad by many persons. They spawn in October. In Chateaugay Lake they have been taken with the red ibis fly, and in Seneca Lake are often taken on set lines. In other waters they are taken with minnow in the fall on shoals where they congregate to spawn in company with the lake herrings.

Otsego Bass; Otsego Shad-Salmon.—*Coregonus otsego*.—De Kay.

Although called a bass, this is a true whitefish. It belongs to the family salmonidæ, and not to the family percidæ. Locally it is known as the shad-salmon. We append the following description from De Witt Clinton:

"Body elongate, subcylindrical compressed; back arched; scales very small; lateral line distinct, straight. Mouth small, with a protuberant bifid upper lip. No teeth in the maxillaries, intermaxillaries, vomer, palatines or pharyngeals. Dorsal fin with nine (?) rays, three of which are imperfect, adipose, filamentous at the tip, caudal forked. *Color*. Dusky above the lateral line; silvery beneath it. Dusky lateral stripes, as in the *Labrax lineatus*, or striped bass; these are about six or eight in number. Pupils black; irides silvery, opercles silvery, spotted with yellow. It spawns in autumn." The small mouthed black bass, (*Micropterus salmoides*, Gill) does not fill this bill at all, although there is great liability to confound it with the Otsego bass, from the fact that it is itself

locally known as the *Oswego* bass,—between which two proper names there is quite a similarity. While the Oswego bass, or black bass, is a voracious feeder and ravenous biter at the hook, the Otsego bass scarcely ever takes the hook. It appears to be peculiar to the Otsego Lake, just as the trout of Winnipisseogee Lake are peculiar to its waters. It has been taken in seines, by several thousands at a time, but was rapidly decreasing in numbers until the year 1871, when the Fish Commissioners began their artificial propagation and the restocking of the lake.

MICROSTOMIDÆ.

SMELTS.—*Osmerus mordax.*—Gill.

The fresh water Smelts found in Nova Scotia and New Brunswick rivers, in certain portions of Lake Champlain, and in New Hampshire, Massachusetts, and possibly many other places, are identical with the sea smelts, having been introduced into fresh waters and acclimated there. It is said that Jamaica Pond, in Massachusetts, was stocked with them as long ago as the close of the last century. They take the hook freely in February and March, and afford lively play for light tackle. The smelts of the Raritan, Passaic, and Delaware Rivers are believed to be identical with their more northern congeners, while the Potomac smelts found in the Washington markets are the *Hybognathus regius.*

Recent attempts have been made by the Maryland Fish Commissioners to propagate smelts artificially.

CLUPEIDÆ.

LAKE HERRING; Bowlin or Mudfish.—*Amia occidentalis.*—De Kay.

The Bowlin or Mudfish, found in the sluggish marshy streams of Vermont, and identical with the dog-fish, mud-fish or lake lawyer *(amia ocellicauda)* of Lake Huron, Lake Pepin, and other Western waters. The only other known species is the *amia calva* of De Kay, found in Lakes Erie and Ontario. It is a worthless, voracious fish, and is caught in the summer and early fall with frogs, minnows, alive or dead, and the trolling spoon. He often attains a weight of twelve pounds. [See Western Inland Fishes.]

LAKE HERRING.—*Argyrosomus clupeiformis* (Mitchell,) and *A. harengus* (Rich).

These fish are very numerous in the shoaler waters of Lake Erie and the western lakes, and very much resemble the salt water herring in size, form and color. They seldom attain a weight of two pounds. They are not especially sought by the angler, although we have caught them with minnows, when fishing for black bass. Insects are the best bait, however. They are found in more or less abundance at all seasons of the year, though they swarm in greatest numbers about the middle of November, which is their spawning season. They are not a favorite fish in the market, being rather deficient in qualities as a fresh or salted fish; but when slightly pickled in brine, and exposed to the smoke of a hot fire for a short time, make most delicious food.

LAKE SHEEPSHEAD; white perch of the lakes; grunter; drum.—*Corvina oscula.* —De Kay.—*Haploidonotus grunniens.*—Raf.

This fish is found in Lakes Erie and Ontario, in Onondaga Lake, and other interior lakes of New York. It feeds on many of the fresh water shell fish, and takes the hook with freedom, but is a dry and tasteless fish, and not esteemed for the table. It occurs also in Ohio and in southwestern waters. Length a foot to eighteen inches; weight three to six pounds. Its shape is something like that of the salt water sheepshead, but it belongs to quite a different family. Color grey on the back, and greyish white below.

FISHES OF THE WEST.

PERCIDÆ.

BLACK BASS.—*Micropterus nigricans.* Gill.

WE believe that this is the only variety of black bass in the western waters, the *M. salmoides* not appearing. [For description see Northern Inland Fishes.] This fish is eminently the game fish *par excellence* of western waters, and is there angled for with an ardor and a keen perception of the *savoir faire* not recognized at the east. Not only in knowledge of his habits, in skillful handling of the fish, but in the use of tackle and methods of fishing, do the anglers of the west excel. They wade from shore out upon the sand bars, fishing with fly or bait; they troll with the spoon or minnow; they still-fish from boat and bank; and indeed use every device imaginable to lure the fish and increase their sport. In the latter part of the season, wading the bars is much in vogue. Dr. Estes says: "I much prefer to fish with the fly from the shore or by wading the bars. I make my own flies, of which I have a great variety. Bass are not as particular in their selection as trout. I do not remember that I ever tried a fly that bass would not take. If the waters are very clear, most any brown or even very dark fly will answer. If the water is turbid, or the waves very high, I then prefer a more gaudy fly. I use my trout bait rod; it is of the very best timber, light, but very springy. I rig my cast precisely as for trout, except my leader is made of the largest and strongest gut, always using three flies to a cast. Well supplied with a good number and variety of flies, with plenty of other extra tackle, and also a strong cord six or eight feet long, on which to string my fish, I commence business by casting right, left and ahead over the bars. Sometimes these bars are of great extent, and will give one some wading before he finds his fish. But the bottom is clean hard packed sand, so that the wading is

neither difficult nor unpleasant. Sometimes you are so far out that to tow ashore and land every fish, although giving good sport, would consume too much time. In this case I tie the cord somewhere to my body, string my fish on this as I catch them, and stand my ground so long as a fish is to be taken. In this way one will clear the whole school. Only once did I succeed in securing three at one cast; these weighed ten and three-quarter pounds. Many times I have taken two at one time, and if the fish are plenty and feeding well, this can be done in almost every case by playing well the first one hooked until another bites. When the second is on I try to prevent another from striking the third fly. Three black bass are too much for light tackle, and something will be sure to give way."

For trolling, the necessary tackle consists of a strong hand line of linen or cotton, and from twenty-five to seventy-five yards long; a medium sized swivel, and a spoon hook, or one of the multitudinous array of spinning baits, trolling spoons, propellers, etc., with the usual accompaniments of red and white feathers and group of hooks so extensively advertised throughout the land. The ordinary, original tin or brass spoon, with single hook soldered on with a swivel, will be found to be equal to if not better than any of the later inventions: the single hook is certainly far superior to the group of two or three hooks usually found on the so-called improved trolling baits. Early in the season, before the weeds are fully grown, this style of fishing is very successful. The method is equally as simple. The angler sits in the stern of the boat, and while the oarsman propels the boat along and over the feeding grounds, the angler lets out forty or fifty yards of line, and the spoon, revolving gracefully beneath the surface of the water, proves an effective lure. The angler now has nothing to do but to hold the line and wait, Micawber-like, for something to turn up, when finally a bass "hooks himself." He is *hauled in*, hand over hand, and the deluded victim deposited in the bottom of the boat, and so on *ad infinitum*. Small spoons are the best in the absence of a spoon hook; the floor of the mouth of the pickerel cut into the semblance of a fish, is tough, white, and glistening, and is a capital bait; a similar bait cut from the belly of the dogfish also answers a good purpose.

Still-fishing is generally done from an anchored boat. It is a very popular method, and is the one generally practiced by the average angler of the Northwest. The finer and more delicate the tackle employed, the greater will be the sport experienced; but as a rule still-fishers use clumsy tackle. The angler should provide himself with a suitable rod and reel, and fifty yards of approved line, together with hooks, swivels, sinkers, landing net and bait; the latter should be minnows or crayfish. Minnows are far the best, and if shiners, are the very best bait that can be used. Chub come next, and small yellow perch are also good, especially if the dorsal fins are clipped off with a strong pair of scissors. If the minnows are lively and strong, and there is a sufficient depth of water, a float is not necessary; but if the ground is weedy, and the water rather shallow, or if crayfish are used for bait, a cork float must be used. If the minnows are large, insert the hook through the lower lip and out at the nostril; if small, hook them under the dorsal fin.

Our still-fisher being fully equipped proceeds to the fishing ground, anchors his boat, and prepares for the fray. Having baited his hook and cast his line, his thumb must be kept upon the coil of line upon the reel; as the line slackens he must reel it in. When a bass takes the bait let him have it for a short time, say from five to ten seconds, according to the mood of the fish, whether they are on or off their feed, whether eager or shy; and by using the thumb as a drag, give him line as he needs it, but not too freely, always keeping it taut enough to give a slight bend to the rod, so as to be able to feel every motion of the fish. At the proper time our angler must check him by pressing the thumb a little harder upon the reel, and if he gives a succession of short tugs or slight jerks, let him go for a few moments; but if he seems to feel the steel, or if he pulls steadily and strongly, hook him by a slight "twist of the wrist"—not by jerking or "yanking" the rod, for in the latter case there is a stronger probability of breaking the rod, or at least of tearing out the hook, than of hooking the fish. When the bass is hooked the angler must never, under any circumstances, give him slack line. If he breaks water, merely let the rod straighten as he falls back; and never, under any circumstances, must he grasp his rod above the reel—at most not more

than several inches above—for by so doing he destroys the spring and balance of the rod, and it is liable to become broken by any sudden movement of the fish. The bass must be killed "on the rod," then reeled in and taken into the landing net.

Trolling with the minnow is very popular with expert western anglers, who regard the method as more *en regle* than still-fishing. The same tackle can be used here as in the last mode described, though almost without exception it will be found to be much superior, many using trout fly rods. The oarsman rows the boat quietly and slowly over the fishing grounds, just outside of the bulrush patches, along the edges of bars and shoals, or between deep and shallow water. The angler reels off from thirty to fifty yards of line, and with his thumb upon the reel and rod slightly bent, must be ever on the alert; for in this style of fishing with moving bait the bass bites very "wickedly," and with forty yards of line out he must be kept well in hand and not given an inch more than is necessary; he must be reeled in at every opportunity until he is within proper bounds, when the angler can take matters more easily and kill him at his leisure. A heavy bass breaking water and leaping three feet into the air at the end of fifty yards of line and a light rod, is a sensation which once experienced will not be soon forgotten. And herein lies the advantage of this method over still-fishing. One can get out more line, even though indifferent at casting; for as the boat moves along the line can be pulled off the reel, yard by yard, with the hand, while the resistance of the minnow in the water takes it from the rod.

Casting with the minnow is another scientific method, and a grade higher in the school of piscatorial acquirements. It combines all the best features of still-fishing and trolling with the minnow, besides possessing advantages which those methods do not. The very best rods, reels, and lines must be used. The angler proceeds in his boat on the outside, or deep water side, of the fishing grounds, and casts *in* toward the feeding grounds, the oarsman rowing along rapidly or slowly, or holding the boat stationary, as circumstances demand. The boat being in deep water the fish are not so apt to see it, which is a great advantage. The angler can cast in any direction and to any distance, greater or lesser, within the length of his line as he may desire. He can cast astern and

proceed as in trolling, or cast to either side, or forward, and by reeling in the line keep the bait in motion. It can readily be imagined how expert casting has so great an advantage over any other method of bass fishing, and when once acquired it will never be relinquished for any other mode. This is the best method to follow when fishing from the banks of a stream, where there are no trees or bushes to interfere; it is also the best method to pursue when wading the stream is practiced.

In trolling or casting with the minnow, when a fish is hooked let the oarsman pull out at once to deep water, so as to give the fish better play and more room, and also to prevent his taking to the weeds.

The angler should never be in too great a hurry to land his fish; for if he is well hooked he cannot get away, but if he is hooked in a thin or weak part of the mouth, there is a greater necessity that he should be gingerly played and tenderly handled, until he is completely "tuckered out," and turns up his belly to the sun. There is never anything gained by too great a hurry in bass fishing. On the contrary, "the more haste the less speed," is a maxim particularly applicable to this case.

In landing a bass the oarsman should, at the proper time, hold the net just under the surface of the water, and hold it perfectly still while the angler brings the fish into or immediately over the net, when the oarsman should lift it quickly and with one motion. He should never be suffered to follow the fish with the net, or by sudden lunges attempt to secure him; for this only serves to frighten the fish and put your tackle in jeopardy. Remember that the *largest* bass always escapes when nearest the boat, and when about to land him.

Dr. J. A. Henshall, of Wisconsin, to whom we are indebted for most of the instructions above given, has decided that the best rod for bait fishing should assimilate as near as may be to the typical trout fly rod in their relative qualities of "balance, weight, strength, and elasticity, with that happy medium of pliancy, between a trout fly rod and a trout bait rod, which can hardly be expressed in words." The Doctor means to say in plain English, that the *bait* rod (for either trout or bass) should be a little "stiffer" than the *fly* rod, in either case. This is quite correct; but while the trout

bait rod is made into a trout fly rod by tapering it throughout, the bass fly rod is changed to a bass bait rod by reducing its length; the weight in each case being considerably diminished, but by different processes. "The rod that I am now using," says the Doctor, "is eight feet and three inches long, in three joints; the first joint or but is composed of white ash, and the second joint and tip of lancewood; it weighs just eight ounces; it is finely balanced, and has a true bend from but to tip, in the form of a segment of a circle; with it I have killed hundreds of black bass, weighing from two to four pounds, and occasionally more, and pickerel from five to twelve pounds, with an occasional one scaling fifteen pounds. I have used it three seasons, and do not see where it can be improved; it is as firm and elastic as when first made. I have several times cast out my entire line of fifty yards, when casting with the wind. I feel justly proud of the merits of this rod, for I made it myself." "As for the bass fly rod" (the Doctor again), it "should be constructed upon the model and of the same material as a single-handed trout fly rod. It must, however, be longer, slightly stiffer, and consequently heavier, but should approximate in its general features, as nearly as possible, the trout fly rod. Assuming a trout rod to be eleven feet long, and weighing from seven to nine ounces, according to the material of its construction, a black bass fly rod should be from twelve to twelve feet and three inches in length, and if formed of split bamboo, should weigh from nine to eleven ounces; or if made of ash and lancewood, should weigh from ten to twelve ounces. Split bamboo makes the handsomest and lightest rod, but a combination of ash and lancewood will prove the most serviceable, and can be furnished for at least one-half the price of the former. The rod should be made in three joints, the but of white ash, and the tip and second joint of lancewood; it should have as true a taper and as graceful proportions as the best trout fly rod; should be very flexible and pliant, but should not be so withy or willowy as the lightest trout rods."

Such a rod, let us say, would be found to answer all the emergencies of fly fishing for black bass, and would be just the implement for the largest brook trout of Maine or the Nepigon. J. C. Welles of Milwaukee, Wisconsin, and Charles F. Orvis of Manchester, Vermont, make such rods warranted to give satisfaction,

at a moderate price. As for reels, the "Frankfort reel," known also as the "Meek reel," and the "Kentucky reel," are in highest esteem. It is made by hand from the finest materials, and as carefully and correctly in its fittings as the movement of a watch. The bearings and pivots are of the finest temper, and the entire reel is as perfect in workmanship, and as finely adjusted as is possible for skill to render it. Contrary to a current opinion, this reel is not more complicated than the ordinary multiplying reel, and contains but the same number of wheels, viz. two; but by a different arrangement of the two wheels, it multiplies four times, while the ordinary reel multiplies but twice; and it runs so perfectly and smoothly that a smart stroke of the finger upon the handle will cause it to make about thirty revolutions, and this without a balance handle.

They are made with or without an alarm click, or a drag or rubber; and where one or both of these adjuncts are used, it does not at all complicate the working of the reel, as they are operated by flat sliding buttons on the side of the reel, and are not in the way in the least. The reel is, in fact, so simple and perfect in its details, that it has not been improved upon since it was first invented, twenty years ago. They are made of German silver or brass, in six sizes, No. 6 being the largest—the best size for black bass fishing is No. 3.

The best line for black bass fishing is a hard braided silk line, the smaller sizes being large enough. A braided linen line would be still better, if it could be procured of a smaller size than is at present manufactured, as they are more closely braided than the silk lines, and consequently do not absorb so much water; this absorption of water interferes somewhat with the free running of the line in casting. Sproat bend hooks, tied upon wire gimp, as a protection against the ever annoying pickerel, are the best.

In casting for bass with minnow, having the rod, reel and line in readiness, tie on a small swivel and the smallest size ringed sinker, and a Sproat bend hook. Now select a minnow four or five inches in length, hook it through the lower lip and out at the nostril, or as some prefer, out at the socket of the eye; reel up the line to the sinker, leaving the minnow one or two feet from the tip of the rod, then grasp the rod immediately below the reel with

the right hand, with the thumb upon the coil of line upon the reel, to control the running off of the line as in striped bass fishing. Now make a sweeping cast to the left or right as you desire, keeping a gentle pressure upon the reel with the thumb, to prevent its overrunning, and stop it suddenly by a stronger pressure as the bait strikes the water. It will take some practice to regulate the reel with the thumb, but with patience and perseverance anyone will soon overcome all the difficulties and become an expert bass fisher. This casting of course is to be accomplished entirely with one hand, for this is the object of the light rod and delicate tackle.

In fly fishing, flies of moderate size and subdued combinations give best success; brown hackles tied on No. 6 Limerick, and brown and yellow flies tied on No. 6 or No. 10 hooks are always successful lures in low, clear water; for higher turbid water more gaudy flies are good, made of scarlet or red body, brown tail and wings, or with double wings, inner scarlet, outer brown, black hackle, tied on No. 4 hook. A very killing fly is made with red zephyr body, then first a pair of scarlet or red wings, then over these a pair of light or dark drake wings. This gives a shade that is obtained in no other way. Another splendid fly is made by putting on first a pair of clear white wings, and over these a reddish brown or scarlet. Green is a most desirable color in combinations, as it is the color of the grasshopper; indeed, red, yellow, and green may probably be called the ground colors upon which patterns are fabricated. A most excellent fly is made of brilliant green silk floss, reddish brown hackle, scarlet tail, wings, under coverts scarlet, over coverts yellowish grey.

Low water affords the best season for fishing. Minnows are abundant and easily obtained.

PIKE PERCH; wall-eyed pike; Ohio salmon; white salmon; glass-eyed pike; western salmon.—*Stizostediom americanum*. Girard.

This splendid fish is found in great abundance in all the tributaries of the Ohio River, in Lakes Pepin and Huron, in Kentucky and Tennessee, and indeed throughout the western waters generally, as far west as the Mississippi. Tons of them are taken through the ice in Lake Pepin in March, just about the time they

are making their spawning beds. They are not often taken of a weight exceeding ten pounds, but Dr. Bull is said to have taken one in the Kentucky River which weighed fifty pounds, and Dr. D. C. Estes, of Lake City, Minnesota, has the lower jaw of one which he caught in Lake Pepin that weighed forty pounds. Its largest teeth were about one inch in length. Dr. Estes, who has studied the habits of this fish very carefully, writes :

" The habits of this fish seem to be well known to most writers, but I am persuaded that with this as with some others, their habits differ somewhat in different waters. All agree that they spawn in April, but I have known them to spawn in this lake as early as the fifteenth of March ; I think, however, this is not always the case. They choose for their beds clean sandy (not gravelly) bottoms in shallow water, from two to six feet deep. As soon as the lake freezes over they commence looking for suitable spawning grounds, and having once selected, and "pre-empted" them, there they remain until the spawning season is over. This is a singular and interesting fact, and one of which I have not the least doubt. The pickerel is their great enemy, and sometimes succeeds in "jumping" their claims. The spawning grounds here are as well known to me and other observers as the position in the heavens of the north star. These fish are taken very late in autumn, but never on the spawning grounds until the lake is frozen over. You may visit these grounds one day and not discover a single fish, but should the lake freeze over the same night, then the next day, if the ice is sufficiently strong to hold you, you may pay these grounds a visit and find plenty of pike-perch. This I have known to be the case time and again. And I know that they remain right here, fighting off every other fish, except the pickerel, who is their enemy and master, until the spawn is deposited in the spring. Hence I conclude that they select their spawning grounds as early as November and December. This singular fact has interested me very much for years. As soon as the young brood is able to take care of itself, it strikes for deeper water, remaining together as a family and commingling with others. For weeks they remain so closely together that a half bushel would easily cover the entire brood. I have seen thousands of these families so near together that many would suppose them to be a regular school, yet every brood sep-

arate and distinct from the others. I have seen large fish dart at them, when they would endeavor to fly away together, no one leaving his kindred until the affectionate family is scattered. Even then they will make an effort to re-unite, but no doubt some of the little fellows have been forever separated from the family circle. They will thus remain together the whole of the first season, unless broken up by their enemies. These observations have many times intensely interested me. I am aware, however, that this is a habit characteristic of the young broods of some other fish, especially of the *Labracins*, or basses. The *habitat* of the adult, or if you please, its accustomed feeding grounds in summer, has been a more difficult matter to determine. In running water I should look for them exactly where I would look for trout ; but in lakes they seem to remain in no one place any length of time. As long as I have angled for these fish here, I can never determine beforehand where I am going to find them. The same pickerel and bass grounds hold good year after year, and we always know what to expect when we visit these places. Not so with the pike-perch. One day you will find them near shore, next in deep water, and the next at the mouths of creeks or sloughs. The most are caught off the ends of points in ten to twenty feet of water. Sometimes they are found very near the shore rolling and sporting in the waves. In this case the bottom is always gravelly and stony. They seem to abhor an abrupt rocky shore. Once my friend Mr. Gibbs struck a large school (they seldom are found in schools) sporting in huge waves so near the shore that his cast could reach them with ease. The wind was blowing (in shore) a regular gale, and the water, when still, could not have been more than two feet. They seemed to be holding a jubilee, but, poor fellows, destruction overtook many of them, and those that were left must have mourned for their brethren "for they were not."

With the brook chub (*Moxostoma oblongum*,) for bait, Mr. Gibbs took, in a little over an hour, so many that he was obliged to get a wheelbarrow with which to take them home. The load was so heavy that he was actually obliged to get help before he could reach his house three-quarters of a mile distant. When I have heard him mention this trip he would puff and blow as though he was living the scene over again. Frequent and subsequent

visits under like circumstances, to the same locality, have failed to find the fish. Owing to the uncertainty of their feeding grounds, not a great many of these fish are usually taken in the summer season. Sometimes we take them with the spoon trolling, but as they are a bottom-feeding fish, they are more generally taken with minnow or piece of fish still-fishing. I have taken a number with the fly; it must be gaudy, larger than a bass fly and shotted with a buckshot put on as near the head of the fly as possible. As soon as the lake freezes over the slaughter of these fish begins right on the grounds selected for spawning. They are taken through the ice by the thousand, and the slaughter continues until the ice is gone; by this time the breeding season is over, and what were not taken by the hook have departed to other waters and resumed their roving habits. Live bait only will answer for winter fishing. [For description of pike-perch, see Northern Inland Fishes.]

Jack Salmon or Sand Pike.—*Lucioperca pepinus.* Estes.

A fine food fish weighing from one-half to three pounds. Color yellowish brown, and spotted very much like the rattlesnake. Resembles very much the pike perch; in fact its specific characteristics are almost identical; so much so, that one is often taken for the other by those not fully conversant with both. They are free biters and are taken with minnow bait. Spawn in April and May. Dr. D. C. Estes first discovered this fish in Lake Pepin and because he had never seen him described or named, called him, years ago, *Lucioperca pepinus.* He must certainly be classed with the pike-perch.

Buffalo Perch or Grunting Perch.—*Haploidonotus grunniens.* Raf.

A large stout shouldered fish of bluish grey color; scales large, fins greyish olive, with sucker mouth; snout very thick, blunt and short; meat very coarse and hard; not fit to be eaten, but the pot-fishermen sell numbers of them to the uninitiated. The grunting habit of this fish is well established. It is not, however, a grunt, but rather a kind of drumming or gurgling sound. Size from five to fifteen pounds.

YELLOW PERCH.—*Perca flavescens.* Cuv.

This well known fish is not as abundant as in the Eastern States, though found to some extent in all those waters. [See Northern Inland Fishes.]

STRIPED BASS.—*Labrax lineatus.* Storer.

Identical with *Roccus lineatus* of the salt water, only much smaller. Found in all western waters of any considerable size. It is a splendid game-fish scarcely surpassed for the table. Taken best in the early and later months. Weighs from two to three pounds.

STRAW BASS; Rock Bass; Calico Bass; Goggle-eye; or Croppie.—*Ambloplites rupestris.* Gill.

This fish is a good pan-fish, and a free biter, but destitute of game. They are abundant in Lakes Pepin and St. Croix; also found in all the rivers and many of the inland lakes. Spawn on gravelly bottoms, in April. Are taken in great numbers with minnow bait, early in the season. Weight from one to two and a half pounds.

SUNFISH.—*Pomotis vulgaris.* De Kay.

This common sunfish is met with in all western waters, but is not abundant.

NORTHERN SUNFISH.—*Pomotis auritus.* Gunth.

This fish is quite abundant. Color greenish brown above, yellowish below; sides of head marked with blue and yellow lines; fins unicolor, ventral ones greenish olive, the others yellowish; opercular or ear-flap black and larger than in *Pomotis vulgaris.* These two species are all that have been observed in the west, though the family is very numerous, some thirteen or fourteen species being found indigenous to the Gulf States alone.

CLUPIDÆ.

THE GENEVA CISCO.—*Argyrosmus clupeiformis sisco.* Jordan.

This is the cisco of Lake Ontario. It is found, according to Jordan, in Lakes Nemahbin, Oconomowoc, La Belle, Troy Lake,

and the waters that form the sources of the Fox River in Wisconsin, and in Lake Tippecanoe, in Indiana. It is neither a coregonus nor a lake herring (*Clupea harengus*) as was formerly maintained, though similar in appearance to both those fishes. Nor is it like them in its habits or edible qualities. The cisco is a very symmetrical fish, white in flesh, and fine in flavor; their size remarkably uniform, ranging from six to ten ounces in weight, and averaging about eight. They make their appearance in June, generally about the tenth, never earlier than the first, and their "run" lasts only about a week. At this time they take a fly ravenously, and afford fine sport to thousands of people who annually come from the surrounding country to catch them. Hundreds of people tent on the shore of the lake, and scores of camp-fires are seen on all sides in the calm summer nights. Very light tackle is required by the angler. Although it is said that they will take bait of any kind, experiments go to show they can only be taken with the natural May fly, myriads of which are found on the grass and bushes along the shore during the cisco run.

DOGFISH, MUDFISH, OR LAKE LAWYER.—*Amia ocellicauda*. Rich.

Found in great numbers in western inland waters, and identical with *Amia occidentalis*, of Vermont. They are very abundant in Lake Huron, Lake Erie and Lake Pepin. Back greenish black; top of head, do; gill covers, yellowish green and olive; sides dark olive, fading to yellowish white on the belly; dorsal fin (forty-seven rays, soft) and caudal (twenty rays) dark olive; pectoral, ventral and anal fins, lighter; a jet black oval spot encircled by a narrow border of golden yellow at base of upper half of dorsal; branchiostegous rays, eleven; a range one-half inch wide on upper jaw of smallish, slightly curved, sharp teeth; on lower jaw a row of similar teeth, behind which is a band of very small ones. Grows from five to twenty pounds in weight. It belongs to the order of *Ganoids*, and is in scales, fins, and the power of tail allied to the extinct fishes of an older world, and it is curious that most of these representatives of the earlier periods are found only in Western waters —the garfish, the paddlefish, and the mudfish.

They take frogs, minnows, and sometimes the spoon. Their habitat is deep water where they drive everything before them.

They are very voracious and savage. Their teeth are so sharp and their jaws so strong that they have been known to bite a two pound fish clean in two the very first snap. They are as tenacious of life as the eel. The young when about six inches long make a famous bait for pickerel and pike. To use it run the hook into the mouth right up through the centre of the head, through the brain, cast a hundred times, catch several fish, and at the end of three to six hours he will still kick like a mule. Put one hundred into a rain barrel and you can keep them all summer without change of water. For the aquarium the young have no equal, and on account of the spot in the tail are quite attractive; but nothing else but snails can live in the tank. He will kill a lizard or any other living thing the instant it touches the water.

Dr. Estes says: "I have sent these young dogfish hundreds of miles for the aquarium. It is only necessary to keep them in water, a change scarcely being required. The adults are the great "jumpers" of the lake. On certain days they are to be seen in all directions jumping clean out of the water, and turning complete somersaults before again striking. They spawn in May and June among the grass and weeds of the sloughs, if they can reach them in time. As soon as the spring rise comes, usually in May and June, and connects the inland sloughs with the lake (Pepin) they run up and over into these sloughs, deposit their eggs, and remain near the beds and young just as long as they can and not be shut in by the receding of the water. The eggs hatch in eight and ten days, the parent remaining with the brood two or three weeks if possible, but will leave them much sooner if necessary to save themselves. The young will not make any effort to escape to the lake until the next season, when if an opening occurs they come pouring out in countless numbers. At this time we take them by stretching the minnow seine across the opening and raising it when full. They are now from three to six inches long, fat and chubby. I come now to mention a peculiar habit of this fish, no account of which I have ever seen. It is this: While the parent still remains with the young, if the family become suddenly alarmed, the capacious mouth of the old fish will open, and in rushes the entire host of little ones; the ugly maw is at once closed, and off she rushes to a place of security, when again the little captives

are set at liberty. If others are conversant with the above facts I shall be very glad, if not shall feel chagrined for not making them known long ago."

Mooneye; skip jack (Lake Pepin); shiner; herring; river herring; toothed herring.—*Hyodon tergisus.* Le Sueur.

This species of the herring family is rather indifferent food. It is found in parts of New York, Pennsylvania and Ohio, and other Middle Western States. The color of its back is bluish; sides silvery; fins tinged with yellow; scales large; head small; eyes very large, and nearly filling the whole space between the angle of the jaws and the upper part of the head; conic teeth in a single row above; in several rows on the lower jaw; tongue with several series of teeth, of which the outer on each side are the largest; teeth also on the vomer, and very minute ones on the palatines. Length nine to twelve inches: Fin rays. D. 15; P. 15; V. 7; A. 29; C. 19.

The Lake Mooneye (*Hyodon clodalis.*) is not so large a fish, seldom reaching more than eight inches in length. Its mouth is larger and its eye not quite so prominent. The under jaw shuts within the upper. Teeth in a single series on the upper jaw; in several below. The sides and tips of the tongue are armed with long acute recurved teeth. Color uniform metallic silvery; bluish above; fins light colored. This species is common in Lake Erie, where it is called "shiner," and lake herring. Fin rays. D. 15; P. 14; V. 7; A. 30; C. 19.

It is quite possible that there is still another variety in Lake Pepin, where it is known as "skip jack," and is thus described by Dr. D. C. Estes: "Its usual length is twelve inches and width three inches; caudal, crescent-shaped; dorsal, situate far back two and one-half inches from tail, and has twelve rays; ventrals, about mid-way, seven rays; anal, extending from ventral to caudal (two and one-half inches,) and has twenty-eight rays. The eye, situated very far forward, is enormously large, hence his common name "Mooneye." Well defined teeth on maxillaries, vomer, palatines and tongue. Color, pearly white to middle, thence darker to back. The nose projects over the lower jaw, and the mouth is small—not as large as the herring's (*Clupea harengus*).

Of the habits of this fish no man, as far as I know, speaketh. I only know that he spawns in April, is known here from April until September, when he disappears. Where he goes I know not, have never seen, or heard of one being seen or taken in the winter. In some seasons they seem to be quite plenty, and at others but very few are seen. On the whole I have always regarded it as a rare fish. They are vigorous biters, and take freely the minnow or fly, and are one of the smartest of fishes. They will come up, taste of a fly, let go and be gone before the angler has time to strike. Therefore to be a "Mooneye" fly-fisher, one must be very sharp and not read a book while casting, as I once knew a man to do."

The doctor speaks of this fish as being a most excellent food fish, and quite devoid of troublesome bones. Its avidity for the fly and minnow is a peculiarity lacking in the varieties above named. There is no doubt, however, that its specific characteristics are common to both.

LAKE HERRING.—*Argyrosomus clupeiformis.* Agassiz.

This fish is described elsewhere under the head of Northern Inland Fishes. It is found in all the western lakes, and is often taken with hook, or fly or minnow in rivers emptying into the lakes. In Lake Pepin is a variety found (as elsewhere,) in vast numbers. It is there called the skip jack, but it is a different fish from the mooneye, which is also called the skip jack. Dr. Estes thinks it is a different fish from the true lake herring, (*A. clupeiformis* and *A. harengus.*) It is dark blue on the back and white beneath, much resembling a shad. They are considered worthless as a food fish, though biting so readily at the hook as to cause much annoyance to the angler. They spawn in May, and are taken only from the first of May until September.

GIZZARD SHAD.—*Dorosoma cepedianum.* Gill.

Oliver Gibbs jr. was the first to discover this singular fish in Lake Pepin, and published the description in a Rochester paper. It resembles the mooneye in general appearance, but is shorter, thicker and weighs from one to three pounds; is generally eaten, having a very good flavor, but quite bony. It is a poor biter and but few are taken—probably not abundant. Dr. Estes says it has as veritable a gizzard as the hen.

Prof. C. C. Abbott describes this fish in vol. iv. of the American Naturalist.

ESOCIDÆ.

MASCALONGE.—*Esox nobilior.* Thompson.

Common in the lakes, and in the larger tributaries of the Mississippi. In seasons of low water, mascalonge fishing is as good in this region as in the Northeastern States. The fish are usually of large size, from ten to forty pounds in weight. The manner of taking them does not differ materially from that practiced in other waters, except, perhaps in the fact that trolling from a boat is not generally successful. For excitement no angling can compare with taking mascalonge on rod and line from the shore, or by wading out on the bars. To kill in this manner a thirty pounder and tow him ten or thirty rods to shore requires nerve and strength, great skill, and very strong tackle. Many of the very largest are frequently lost by weak tackle and unskillful playing.

Dr. D. C. Estes, an excellent authority on Western fish, says: "For years I found it very difficult to find rods that would stand this kind of fishing. At last I set myself up as an amateur rod-maker for my own benefit. Obtaining some of our best native timber, I have made rods that have never yet failed me or my friends. I always supply myself with at least half a dozen large spoons of different colors and styles, metals, brass and copper, all dressed with feathers of different colors. When I hook a mascalonge or pickerel and lose him, I at once rest the pool for a few minutes, (there is no danger of his leaving) then changing my spoon to another color, I wade out and commence casting again. And in nine cases out of ten I will get my fish. Often I have changed my bait four or five times, and as many times had him on and off, but finally succeeded in landing him. A piece of the belly of a fish makes the best of all bait for the mascalonge if properly cut, so that it will spin nicely. They will often take it when spoons are no temptation. [See Northern Inland Fishes.]

PIKE.—*Esox lucius estor.* Le Sueur.

This is the only species of the *Esocidæ* found in the upper Mississippi. It is very abundant and attains to twenty and twenty-five pounds in weight, but never to the weight of the mascalonge.

They are considered by many a fine food fish. [See Northern Inland Fishes.]

STURIONIDÆ.

ROCK STURGEON.—*Acipenser rubicundus.* Le Sueur.

This is the sturgeon of the great lakes and all the larger Western waters. They are well known. They differ in some respects from those of the Hudson River and other rivers of the Eastern States, and do not attain to such immense size. They are a good fish when properly cooked. The long projecting sucker mouth situated almost under the centre of the head will sometimes suck in from the bottom the angler's baited hook, in which case one might as well try to snub an old log. It is possible, however, to coax him to move occasionally, and then you may, and you may not, succeed in bringing him to gaff. A friend once had a tussle with one for over an hour, but finally conquered, concluding that as a game fish, the sturgeon was not a success.

SHOVEL-NOSED STURGEON.—*Scaphirhynchops platyrhynchus.* Cope.

This curious fish is found only in the Mississippi and its larger tributaries. It is certainly a strange looking fish. Its striking characteristic is its long, horny, spade-like snout, which is from eight to eighteen inches in length, and from two to three inches wide, and its immense toothless mouth. In large specimens the mouth is sufficiently large to admit of a man's head. The head and shoulders are very large, from which the body tapers gradually to the caudal fin, where it is not more than two inches in diameter. The tail is forked; wide and hetrocereal, said to be the only fresh water species living possessing this paleontological characteristic.

In Lakes Pepin and St. Croix they swarm in countless numbers. How far towards the Gulf they extend has not been ascertained. They are eaten by Indians and half-breeds generally. The whites sometimes corn and smoke them. When thus cured, they are quite palatable. They weigh from ten to forty pounds.

SALMONIDÆ.

MACKINAW TROUT, or Great Lake Trout.—*Salmo namaycush.* Pennant.

Special characteristics. Head one-quarter total length; muzzle pointed; scales small and oval; nostrils double; jaws and

tongue with a single row of teeth on each side; vomer with one row. Dorsal fin nearly equi-distant.

Color.—Dusky brownish grey; chin and under parts light ash or cream color. Back and sides speckled with numerous irregularly shaped spots of lighter grey, brown, or soiled white. Lower fins faint yellow. Resembles *siskowit*, but has more pointed chin and snout, more deeply forked tail and larger head.

Habitat.—Lake Superior, Lake Michigan, Lake Huron, and probably in all the great lakes which lie between the United States and the Arctic Sea.

Prof. Milner says that "this fish may be readily taken with the hook baited with a piece of fish, but as they are ravenous feeders, almost any kind of bait will serve the angler's purpose, who will however, derive little sport from their capture, as they are excessively dull and sluggish." Professional fishermen capture them with lay-out lines and nets. Herbert says, "A coarse, heavy, stiff rod; a long and powerful oiled hempen or flaxen line, on a winch with a heavy sinker, a cod hook baited with any kind of flesh, fish or fowl, is the most successful, if not the most orthodox or scientific mode of capturing him. His great size and immense strength alone give him value as a fish of game; but when hooked, he pulls strongly and fights hard, though he is a boring, deep fighter, and seldom, if ever, leaps out of the water like the true salmon or the brook trout."

Nevertheless, trolling for trout is a favorite pastime of the residents and tourists of northern Michigan. It is said that the Mackinaw trout bites best when he is fullest. Large and solitary specimens are frequently taken—sometimes with the gaff alone—while swimming at the surface of the water. These are known as "racers," and are always thin. The average weight is about five pounds, but monsters weighing from sixty to one hundred are heard of. The largest that ever came under the writer's observation, weighed fifty-three pounds seven ounces, and was caught near Elk Rapids, or Traverse Bay. The spawning season begins in October and ends early in November. But very little seems to be known of their habits at this season. Rocky bottoms are usually, but not always, preferred. A clay bottom near St. Joseph, Mich., is said to be frequented by trout for this purpose.

Fishermen claim the principal food of the lake trout to be whitefish, and assert that they are often caught in their nets while robbing them of these fish; however, Milner says in every instance that came under his observation, the supposed whitefish proved to be ciscoes, yet he does not doubt the fact of their preying upon whitefish to some extent.

SISCOWET, or SISKOWITZ.—*Salmo siscowet.* Agassiz.

Specific characteristics.—Head large, nearly one-fourth total length. Snout obtuse and rounded. Two rows of teeth on the tongue. Depth of body at first dorsal equal to one-fifth total length. Scales small, larger on lower region of the body. *Color*, Resembles somewhat the *salmo namaycush* from which it may be recognized by its different opercular apparatus. *Habitat*, Lake Superior.

The Siscowet spawns in August and September, and always in deep water; in fact, the fish is never taken in much less than forty fathoms. The fattest of all known fish, it has no unpleasant or oily odor, and for the table is much valued. This fish has been extensively maligned as unfit for eating in a fresh state; that it was insufferably oily and rank, though all united in its praise when salted. With the concurrence of such authority as Agassiz, we have no hesitancy in pronouncing it food fit for an emperor in *either* state. There is, however, a species of white meated trout of very indifferent quality, so closely resembling the siscowet, that it is largely sold under that name, by which means the nobler fish is undervalued, except where well known. This is known to the Indians as the "bear trout," and we presume is the fish that furnished ground for criticism to the detractors of the siscowet. The siscowet weigh from five to twenty pounds. It is generally taken in gill nets, but the probability is that it may also be taken by trolling, using as bait the cottoid mentioned by Milner as forming the principal part of its food.

COMMON SPECKLED TROUT.—*Salmo fontinalis.* Mitch.

Taken in Michigan, Wisconsin and Minnesota, as well as in the streams and rivers that empty into Lake Superior. In the Nepigon River they average three or four pounds each, and an

authenticated specimen is recorded which weighed seventeen pounds. [See Northern Inland Fishes.]

WHITEFISH.—*Coregonus albus.* Le Sueur.

Specific characteristics: Depth of body equals length of head, which is two-ninths of total length, excluding caudal; diameter of eye less than length of snout, which is pointed. *Color.* Silvery white, resembling the herring.

Dr. G. A. Stockwell, of Port Huron, Michigan, gives the following most excellent description of the habits of this fish: "The whitefish is among the best of lake fish, being second only to the Siscowet, and by many pronounced superior to the great trout. The spawning begins in November, terminating in December, and is indicated by the fish leaving deep water and appearing in immense numbers on rocky shoals. Formerly they frequented the streams for this purpose, but, at the present time, there are but few streams emptying into the great lakes that are free from saw mills and their attendant dust, which are offensive to these fish. At the first day's netting on the spawning beds the catch is wholly males, apparently well stocked with milt; on the second, a few females appear, plump with spawn. The proportion of females increases day by day, until after a week or ten days, when there are two or three and often four times as many females as males, after which they gradually disappear, until the latter preponderate, as they are the last as well as first upon the beds. The best opinion seems to be that the males precede the females only to prepare the ground; especially as they at that time assume an extraordinary roughness of scales, and employ themselves constantly in scraping up gravel, on which the spawn is subsequently deposited. Some, however, believe that the mere inclination to milt causes them to seek the proper position without reference to the presence or absence of the females; others still are of the opinion that they precede only to wait for the females, and do not commence milting until spawning begins. This latter opinion is undoubtedly the true one, for Mr. Milner has established the fact that the act of spawning in the female and milting in the male, is carried on at the same time, and with a slight, though decided orgasm. The males have been accused of lingering for the purpose of feasting

on the spawn, but this is contrary to nature and undoubtedly a slander. The most careful of observers assure me that the males who linger on the beds are employed in covering the spawn.

"Whitefish of Lake Erie ascend the Detroit River and pass through the lake into the River St. Clair for the purpose of spawning, but seldom, if ever, go higher than Mooretown—eight miles from the outlet of Lake Huron. Again, Lake Huron fish ascend the Ste. Marie River for the same purpose; but it is a well established fact that none descend these rivers from the waters above for a like purpose. Lake Huron whitefish rarely enter the River St. Clair, except after a heavy and continued northeast storm, then they are driven into the river in large schools.

"The average whitefish is of two or three pounds weight; a large one six or seven; rare specimens are caught, however, of much greater weight, sometimes turning the scales at twenty pounds. Those of Lake Superior and the Straits are larger, fatter and finer in flavor than those of the lower lakes. In the rapids of the Sault Ste. Marie they are taken in large quantities by the Chippewa Indians in dip nets and are of very superior flavor. The fish of Lake Huron and Upper Lake Michigan are very fair, but those of Lake Erie are decidedly inferior, which is probably due to the difference in temperature of these waters. Few travellers ever taste whitefish in perfection except they have visited the northern resorts. As eaten upon the hotel tables of Buffalo, Chicago, and even Detroit, it is comparatively a tasteless fish; as a meal for an epicure it must be had fresh from the icy waters at the Straits or of Lake Superior, and cooked as soon as may be after it is caught. Then, to our thinking, the whitefish is one of the most toothsome fishes that swim, superior even to the salmon or brook trout.

"Formerly the capture of whitefish was conducted by means of seines, but the wholesale destruction on the spawning beds has caused gill and pound net to supersede them. The food of this fish was long a matter of conjecture, but is now believed to consist mainly of the minute crustaceans and mollusks that inhabit these lakes. This is rendered probable from the fact that the mouth is constructed for nibbling along the bottom, being directed nearly downward. The frequent failure to find food in the stomach of the whitefish, is doubtless due to their capture in pound nets,

where they would remain sufficiently long to digest the contents, but those caught by gilling have generally food partially digested. It is asserted that whitefish are migratory; how true this is I do not know, except it be for spawning purposes; they do, however, seek the deeper and cooler waters as summer advances. The presence of large fishes in numbers at certain localities, of a size never taken anywhere else, would suggest a local habit, with no disposition for long voyages."

Whitefish do not take the hook readily, and the opinion has obtained that they could not be caught in this fashion. Nevertheless they have afforded good sport to the angler with a fly-rod baited with the May-fly, (*Ephemera*); and worms have also been used with success. The whitefish of the Rocky Mountains take flies as readily as trout, and so do some of the eastern whitefish at certain seasons of the year.

GRAYLING.—*Thymallus tricolor*. Cope.

Specific characteristics.—Depth of body is contained four times and two-thirds in total length without caudal. Head enters about five times; length of snout equals diameter of eye; lower jaw projects slightly. Origin of dorsal fin corresponds to the middle of the distance between operculum and ventrals. *Color*. Purplish-grey; silvery white on belly; small bluish black irregular spots on sides. Dorsal fin which is greatly developed has along its insertion a black line, next one of rosy pink, then a dark one, and one of rose hue just above, beginning at sixth ray; a row of spots of dull green; a row of very small fifty-six ray spots; finally a broad dusky area. Prof. Milner says: "There is no species sought for by anglers that surpasses the grayling in beauty. They are more elegantly formed than the trout, and their great dorsal fin is a superb mark of beauty. When the well-lids were lifted, and the sun-rays admitted, lighting up the delicate olive-brown tints of the back and sides, the bluish white of the abdomen, and the mingling of tints of rose, pale blue, and purplish pink on the fins, it displayed a combination of living colors that is equalled by no fish outside of the tropics."

And Mr. Fred. Mather adds: "The grayling has all the fins of a trout; his pectorals are olive-brown, with a bluish cast at the

end (I am describing him in the water as I saw him in my ponds an hour ago,) the ventrals are large and beautifully striped with alternate streaks of brown and pink, the anal is plain brown, the caudal is very forked and plain, while the crowning glory is its immense dorsal; this fin rises forward of the middle of its back, and in a fish a foot long it will be nearly three inches in length by two high, having a graceful curved outline, and from eighteen to twenty rays dotted with large red or bluish purple spots, which in life are brilliant, and are surrounded with a splendid emerald green, which fades after death; it does not seem as if this green could be represented by the painter's art; it is that changeable shade seen in the tail of the peacock.

"In shape the fish is like a trout, a trifle slimmer, perhaps, and not so thick near the tail, but the fin on the back of a trout looks so small and square, so deficient in outline and color, after beholding the graceful curve of a grayling's dorsal. The scale is large, silvery, with sometimes a copper tinge; near the shoulders there are black spots, sometimes triangular, and at others V shaped; in some fish these extend nearly to the tail near the back; they are in lines which gradually shorten towards the belly; the mouth is small (nearly square when opened), and the teeth are merely a slight roughness on the lips, none on the tongue. But you want to see him come in on a line, with his fins all standing, and your eye will then give you a better idea than all the cold-blooded descriptions could ever do."

The generic name *thymallus* is derived from *Thumallos*, the Greek term for thyme, from the impression the Greeks had that the fish possessed the odor of this herb. Hence the Thymalli must have attracted attention from a very early period.

This tribe of fishes bears marked relationship in many respects to the *salmonidæ*. They inhabit the cold streams of many portions of the United States, Canada, Europe, and Asia. It is a game fish of the first quality, takes the fly with avidity, and carries on a brave and spirited contest with its captor. Its flesh is white, or faintly straw color, and excellent in flavor. The artificial breeding of the grayling was successfully carried on in Bavaria twenty years ago by Mr. Kauffer Royal, fisherman in the Garden of the Royal Veterinary School. Fred. Mather and Seth Green, our eminent pisci-

culturists, have both bred the grayling successfully by the artificial process.

Its habitat is the centre of the lower peninsula of Michigan, a wide, elevated plateau, a sand region, with a soil containing a very small per cent. of organic matter, and covered with a forest of pines, generally the Norway pine. From this plateau rise several large streams and rivers, flowing each way, into Lakes Huron and Michigan. Among these are three rivers of note, the Muskegon, the Manistee, emptying into Lake Michigan, and the Ausable, emptying into Lake Huron. Among the minor streams are the Cheboygan, Thunder Bay, and Rifle, tributary to Lake Huron, and the Jordan, emptying through Pine Lake into the Traverse Bays of Lake Michigan. A few branches and streams, spring fed, are formed, in which the water has a uniform degree of coldness throughout the summer, seldom rising above fifty-two degrees. The rivers Rifle, Ausable, Jordan, Hersey, branch of the Muskegon, and the headwaters of the Manistee, all have this character, and in all of these, and only in this limited locality, is found the Michigan Grayling.

The grayling is a spring spawner—spawns in April, and is in best condition and fighting trim in September. His food is the fresh-water shrimp, caddis, larvæ, snails, and the larvæ of the *chironomus* fly. They take the artificial fly as greedily as trout do, are angled for in precisely the same spots where trout would be sought. As Sir Humphrey Davy says of the English species, "He rises rapidly from the bottom or middle of the water, darting upwards, and having seized his fly returns to his station." He certainly affords as much sport as the trout, and his tender mouth requires more careful handling. Prof. Milner says that "hooking a large one, he had good evidences of his plucky qualities; the pliant rod bent as he struggled against the line, curling his body around columns of water that failed to sustain his grasp, and setting his great dorsal fin like an oar backing water, while we cautiously worked him in, his tender mouth requiring rather more careful handling than would be necessary for a trout; making a spurt up stream, he requires a yielding line, but after a time he submits to be brought in, rallying for a dart under the boat, or beneath a log, as an attempt is made to place the landing net under him.

Finally brought on board, exhausted, he is easily removed from the hook."

They are free, strong biters, and cannot be considered very shy, as they will rise repeatedly to a fly if a failure is made in hooking them. Often two, and occasionally three, are landed at once. Nevertheless, experience proves that it sometimes requires all the ingenuity of an experienced fly-fisherman to induce an occasional rise, even when grayling are seen to be plentiful in the river. Very many styles of flies are used. The favorite grayling fly is made with a stone wing and yellow body; brown and grey hackles, the white and lead wing coachman, the silver widow, the Jewel fly, and the professor, with light yellow dyed hackle, mostly used. In fact any fly tied on No. 6 and 8 O'Shaughnessy hooks will kill, if not too gaudy.

The history of the discovery of the species is as follows: It has been known for years to the people in adjacent counties, and among the lumbermen, and generally called trout, distinguishing it from the ordinary species by applying the local name of the stream, as the "Hersey trout," or the "Jordan," or "Ausable" trout.

In the winter of 1864 and 1865, Prof. Edward D. Cope, of the Philadelphia Academy of Sciences, worked up a large collection of fishes, sent by Mr. M. Miles, of Lansing, belonging to educational institutions of the State of Michigan. Among these he found this species, readily detecting its relation to the genus *Thymallus*, and giving it the name of *tricolor*. In the winter of 1872, Mr. D. Fitzhugh procured specimens and forwarded them to Professor Baird of the Smithsonian Institution, and to Professor Agassiz, as well as to prominent authorities of the hook and line profession. These were the first specimens obtained by the museums, and were regarded with a great deal of interest. Two obtained for the U. S. Commission of Fisheries in 1871, from the Jordan River, were lost in the great fire at Chicago. Mr. Fitzhugh subsequently went before the legislature of his State and induced the passage of a law protecting the grayling from a too rapid destruction. He was also the first to communicate with reference to their habits and qualities as a game fish.

CYPRINIDÆ.

RED HORSE OR LAKE SUCKER.—*Catostomus cepedianum.*

A large red-finned sucker weighing from one to six pounds. Often eaten fresh, but much better corned; very bony. They are quite a handsome fish, like many of the family. It is taken only with spear, seine and snare—the latter method the best. In very hot, sultry days they swarm by the acre, playing, jumping and tumbling on or so near the surface as to be plainly seen. In Lake Pepin they are described as so numerous that not a foot of water for acres in extent is undisturbed. They spawn early in spring. The young are much valued for bait, and are well adapted for the aquarium.

BUFFALO.—*Bubalichthys bubalus.* Agassiz.

One of the largest of the suckers (*catostomidæ*) found in the Ohio River, and in many Western waters. An excellent food fish.

SCIENIDÆ.

MALASHEGANAY; sheepshead.—*Corvina richardsonii.*—Cuv. and Val.

This species is common in Lake Huron where it is highly prized as food, and also occurs in Lake Erie. It is taken with crayfish, on which it principally feeds. Length from one to two feet. Color, grey with dark transverse bands above; sides silvery; abdomen yellowish. The sheepshead of Lake Pepin is not valued as food.

SILURIDÆ.

There are but two species of catfish found in the west—the Mud Cat and the Lake or Channel Cat. The former is worthless, but the latter, which is common in the waters of the Upper Mississippi, is universally regarded as a fine and healthy food fish, and is much sought for by many. It is of a dark brown color, sometimes nearly black; attains a large size, occasionally weighing as much as a hundred pounds, taken with hook and line, with any kind of bait from a piece of wheat dough to any piece of meat. Beef's liver is a favorite bait. On the hook they are strong and most obstinate, and will often carry away the very strongest tackle.

FISHES OF THE NORTHWEST.

FOR the abundance and variety of its edible and game fishes, the Northwest far surpasses all other regions of North America, not only in its Salmonidæ, but in other classes or families. Referring only superficially to the ichthyc fresh water fauna of Alaska, which have not been thoroughly investigated by scientists, we enumerate the following, irrespective of order or classification :

A sucker found there, which is called *craskee* by the Russians, *(Catostomus teres)* is quite common, and for its Northern habitat, quite large, averaging from four to seven pounds. A species of the cottidæ, called *unduk* by the Tinnehs, frequents the shallow streams and ponds, and is caught in large numbers by the aborigines who scoop them out with their hands, paddles and grass baskets. The flesh is insipid but sweet, and for this flavor a few tribes like it. If one were to give it an English cognomen he would be apt to call it a black bullhead or sculpin. A small dace, also found with this, bites readily at a baited hook. The pike (*Esox estor,*) is very abundant in the ponds and lakes of the almost Arctic regions of Alaska. It resembles its eastern congener, is of little use as an article of food or sport, and it is, therefore, let severely alone, except the comparatively limited numbers caught in seines for the purpose of feeding the sledge dogs. The burhot, eel pout, or losh, (*Lota maculata,*) swarms in the lakes and rivers, and being quite edible, and weighing from thirty to fifty pounds, it forms quite an extensive article of food, for when broiled, it is quite delicate, the flesh being hard and compact. The liver is considered the best portion, as it is permeated by a sweet, rich oil, which is often extracted for the purpose of the *cuisine.* The skin, which is translucent when prepared, is used quite frequently for window glass. The male, which is smaller than the female, often carries two gall bladders, while the female has but one. The latter will compare with any of her order in fecundity, for she is full of

roe in the spawning season, from October to January. These she bears in two sacs near the vent, which are connected by an opening with the cloaca. Though slow in movement and apparently dull, this species destroys large numbers of whitefish, and others of less importance. The grayling, (*Thymalus signifer*) is very abundant. Of the whitefish, there are several varieties or species, the larger portion being allied to the southern prototypes, the greater difference being in their numbers. There are the nulato —*nulatoski* of the Russians—a small bony and comparatively useless fish ; the *morskoi*, or whitefish of the Russians, a highly edible variety, which weighs between two and four pounds, and has firm, succulent flesh. It is readily recognized by its small head and fins. The hump-backed species, the *corabati* of the Russians and *Ko-lak-ah* of the Yukons, is quite abundant, but bony and insipid, the *coregonus nasus*, or round fish—the Russian *krug*, and Yukon *hutuen*—with its long subfusiform body and lean muzzle, is a denizen of several streams, and is often caught for food ; the *Coregonus muksun*, or broad whitefish, the *tel-ih-yuh* of the Yukons, with its large scales, broad body, short head and weight of thirty pounds, is readily distinguished from the others, and as it is excellent for the table, large numbers are caught at all seasons by the Indians. The largest of this genus is the great whitefish, (*Luciotrutta leucichthys*,) which excels its congeners not only in size but flavor. It is very abundant in the Stikine and Yukon Rivers—and is found in all the streams throughout the year. It measures between two and four feet in length, and its weight ranges from twenty to forty or fifty pounds. It is full of eggs from October to the first of January, so is in the best of condition from May to August. It has a fine outline, being slender and long ; and its color is bright silvery above, somewhat darker beneath. Despite the abundance of this fish and its excellent edible qualities, it is not used as an article of commerce. It certainly seems plausible to suppose that its size and numerical strength would render its capture and exportation a successful enterprise if the limited fishing-grounds of Lake Superior can be worked with profit.

The profusion of salmon and whitefish in Alaska should make that region the supply depot of the world, for they are certainly abundant enough to feed the people who use fish as a portion of

their diet. All required to prosecute the business is a comparatively small capital, and whoever is first in the field has the best chance, for ere long this great wealth will be utilized by those whose means will be ample enough to enable them to monopolize the largest share.

The species enumerated, and the brook trout, (*S. stellatus*), are the only fishes frequenting the fresh waters of Alaska, that have much interest for mankind in general.

Passing now to the more immediate and better known regions of the great Northwest, in which we include all that country which lies beyond the Upper Mississippi River, and especially that beyond the eastern foot hills of the Rocky Mountains, we shall attempt to particularize all the recognized varieties except the sea salmon, which we prefer to class among the fishes of the Pacific Coast, under which head they will be found. The following list is given by D. S. Jordan and Herbert E. Copeland in their paper entitled "Check List of the Fishes of the Fresh Waters of North America," (*Bulletin of the Buffalo Academy of Natural Sciences*, p. 144, December, 1876.)

Salmo iridea.—Gibbons.
" *masoni.*—Suckley. *d. s.*
" *pleuriticus.*—Cope.
" *virginalis.*—Suckley.
" *carinatus.*—Cope. *d. s.*
" *lewisi.*—Suckley.
" *stomias.*—Cope.
" *spilurus.*—Cope.
" *brevicauda.*—Suckley.
" *gibbsii.*—Suckley.

Salmo warreni.—Suckley. *d. s.*
" *kennerlyi.*—Suckley.
" *bairdii.*—Suckley.
" *parkii.*—Suckley.
" *hoodii.*—Richardson.
" *newberryi.*—Girard. *d. s.*
" *alipes.*—Richardson. *d. s.*
" *nitidus.*—Richardson. *d. s.*
" *campbelli.*—Richardson. *d. s*

Of these, the names marked with "d. s." in italics may be considered as doubtful species requiring revision. They may prove only synonyms of at present well known species.

SALMONIDÆ.

PACIFIC BROOK TROUT.—Mountain Trout.—*Salmo iridea.* Gibbons.

Special characteristics.—Head one-fourth the total length; diameter of eye enters length of head five times, dorsal fin half-way

between end of muzzle and insertion of caudal fin ; muzzle pointed. Branchiæ, x, xi. *Color*, olive-brown on back with silvery reflections, fins red or orange. Head and gill covers spotted profusely with black ; back and sides also spotted irregularly, numerous near the tail. Dorsal, adipose and caudal fins also spotted.

Suckley states it may be distinguished from *S. lewisi* by its large head and more slender form, larger scales, more numerous spots and more forked tail. From *S. virginalis* by its strongly forked tail and spotted head. *Habitat*, California and Pacific States. It has been taken in nearly all the waters of the Pacific, notably at San Mateo Creek, Cal., San Francisco, Chico Creek, Cal., Humboldt Bay, Dallas, Oregon, Fort Steilacoom, Nisqually Creek, Cape Flattery, Puget Sound, Kern River, Cal., etc.

This species may be taken with almost any kind of bait. It will rise readily and greedily to the fly or the grasshopper ; raw meat is good, the eye of a fish excellent ; grubs, larvæ, and worms, all seem to be eagerly desired. Suckley has taken them by trolling with a "belly fin of a fresh killed fish." There is a peculiarity of this fish and its western congeners regarding location, which is worthy of mention. Unlike the eastern trout it seems rather to prefer moderate currents of water, or indeed pools which are absolutely still, and this fact should be remembered by those who fish. This specimen attains a weight of from four to six pounds, and is in good condition for the table from spring until near Christmas, at which time they begin to spawn.

Mr. Henshaw, the ornithologist of the Expedition for Explorations West of the one hundredth Meridian, who has had considerable experience, states that "in the rapids of the mountain streams artificial flies can be used with excellent effect, the smaller individuals striking freely. In the pools of such streams, however, they are of less service, grasshoppers or the white larvæ found in rotten pine stumps being there the most killing bait. Dr. H. C. Yarrow states that he has taken seventeen fine trout out of one pool not more than *three feet in diameter*, in quick succession with grasshoppers. In the large mountain streams of Kern River, California, where the trout reach a weight of seven pounds, a spoon bait often proves very taking. Early in the season any or all baits suffice, but later, when the trout get thinned out, they are very shy, and

difficult to tempt with anything. Mice and squirrels cut into strips have succeeded where other lures have previously failed. In Lake Tahoe, where *S. iridea* abound as well as another species, believed to be new, the former are said to reach a weight of thirty pounds. The methods of capture are various, trolling being generally employed, the hook being similar to the one used in the east for catching bluefish; but on the hook a minnow is placed as bait, and the boat is slowly rowed along the line of shallow and deep water which varies in depth from thirty to seventy-five feet. The fishermen maintain the existence of two distinct species of trout, which they call "Silver Trout," and the "Black or Salmon Trout," and the difference of color is distinctly appreciable. There is also a marked difference in the size of the adipose fin.

MASON'S TROUT.—*Salmo masoni*. Suckley.

This species may prove to be only a variety of the preceding. Girard calls it *Fario clarkii*. It is found in Oregon and Washington Territory. As it is marked as a doubtful species, no description is here given of it.

ROCKY MOUNTAIN TROUT; Yellowstone Trout.—*Salmo pleuriticus*. Cope.

Specific characteristics.—Head rather smaller than its Western congeners; enters four times in length to notch of caudal, which is well emarginated; muzzle obtuse; diameter of eye enters four times in length of head; depth of body four and five-tenths in length to end of caudal scales; dorsal fin midway between latter and end of muzzle; scales small; Branchiæ xi. *Color*, Bluish silvery lead on back, yellowish-white beneath; sides with short, broad, longitudinal bars of crimson; a band of the same color occupies the fissure within each ramus of the jaw and skin on the median side of it. Fins crimsoned, none black bordered. This species is well spotted with black, the spots being mostly above the lateral line, on the caudal peduncle, dorsal and caudal fins. It should be mentioned that Prof. Cope and Dr. Yarrow have described four different varieties of this species in which the markings vary greatly from the type, for description of which the reader is referred to Vol. V., Zoölogy of "Expedition for Explorations West of one hundredth Meridian," Fishes, 1876, p. 694.

Habitat, Colorado to Arizona. This is by far the most abundant species of the head-waters of the Green, Platte, and Yellowstone Rivers, but is found in Medicine Lodge Creek, Idaho; in Montana and Nevada, near Fort Garland, Colorado; San Juan River, Pagosa, Colorado, Rio Grande River, Colorado; Costilla, New Mexico; Rio Taos, New Mexico; Chama River, New Mexico; and the streams of the White Mountains of Arizona. This species may be considered one of the gamiest of its family. Great sport can be had by its capture, especially in the San Juan River, near the Pagosa Hot Springs of Western Colorado. It takes the fly greedily at times, more especially at evening, seeming to prefer a grasshopper in the morning; but it will bite at minnows and small grubs or worms. Mr. Charles E. Aiken took one evening from a pool in the San Juan River just at sunset, not less than twenty-five pounds of this fish with an old worn-out brown hackle fly. The tourist or sportsman will find Colorado one of the best regions known for the capture of this fish.

UTAH TROUT; Southern Rocky Mountain Trout; Speckled Trout.—*Salmo virginalis.* Girard.

Special characteristics.—Head medium, much like *S. pleuriticus.* Depth of body enters length 5.75, diameter of eye enters side of head 4.5 times, muzzle obtuse; caudal fin scarcely emarginate. Branchiæ, ix, ix.

Color.—Greyish brown above, with purplish reflections, varying much in shade and subcircular black spots; beneath olivaceous, unicolor. Spots on back frequently run into the conjunctiva of the eye, a fact that has not been noticed regarding other species. *Habitat.*—Southern Rocky Mountains, Utah, Colorado, and New Mexico.

This species may be distinguished from *S. iridea*, which it resembles somewhat, by its smaller head, absence of dark spots on top of head, and absence of caudal forking.

These fish are taken in the Provo or Timpanagos River, near Provo City, fifty miles from Salt Lake City, in Utah Lake, a magnificent body of water near Provo, and at Pang-witch Lake, not far from the town of Pang-witch, which lies in the valley of the Sevier, southeast of Parowan, Utah. Any angler who should visit

Utah ought not to miss visiting one or the other of these localities. The Webber River near Ogden, Utah, is also a good place to fish.

This fish is (as in fact all the western trout are), exceedingly capricious regarding food. At times they will rise beautifully to flies, dark ones being generally preferred, and at others will take nothing but grasshoppers or minnows. In Provo River they are not known to rise to a fly, but grasshoppers answer well; in the Beaver River nothing can be done with flies, and at Pang-witch Lake fat pork and fishes' eyes succeed admirably.

At Utah Lake enormous numbers are taken by nets, frequently five hundred pounds at a single haul, and formerly as much as three thousand seven hundred pounds have been taken. As may be supposed, at this place fishing will not be good much longer. Two hours' ride from Salt Lake City will bring the sportsman to Provo and when there he should visit Mr. Madsen's place, near the Lake, if he desires good fishing.

YELLOWSTONE TROUT.—*Salmo carinatus.* Cope.

Specific characters.—Head sharp, well keeled above, 4.66 times in length to notch of caudal, which is well marked; diameter of eye enters length of side of head five times; dorsal fin nearer muzzle than end of caudal scales, which are large; 33 below the first ray of the dorsal; spots large and distinct, far apart. *Color.* Light rosy, marked with round black spots sparsely distributed over the entire body. The dorsal and caudal fins are spotted. Fins and sides of head crimson. *Habitat,* Rocky Mountains. Prof. Cope considers this species distinct, but possibly future study of specimens will show it to be identical with the preceding species. The bait taken by the others of its family will also serve for it.

LEWIS TROUT; Missouri Trout.—*Salmo lewisi.* Suckley.

Specific characters.—Body somewhat thick; back well arched; head rather small, entering about five times in length of fish; tail somewhat notched; first dorsal ray nearer point of snout than base of caudal.

Color.—Above bluish grey; lower, orange or yellow. The back, peduncle, dorsal, adipose and caudal fins spotted with black.

Belly and lower fins unicolor, a deep orange hue existing along the rays. This species may be distinguished from *S. virginalis* by its much smaller head and more deeply matched tail and larger scales; from *S. iridea* by larger scales, smaller head, fewer spots and less forked tail.

Habitat.—Both slopes of the Rocky Mountains north of the South Pass; head waters of the Missouri; southern tributaries of the Yellowstone; Black Hills of Nebraska; Clark's Fork of the Columbia; Kootenay River; Bitter Root River, Washington Territory.

Of this fish, Dr. Girard says, this is the trout alluded to in "Lewis' and Clarke's Travels," who speak of it as follows:

"Being at the falls of the Missouri they caught half a dozen trout, from sixteen to twenty-three inches long, precisely resembling in form and the position of the fins, the mountain or speckled trout of the United States, except that the specks of the former are of a deep black, while those of the latter are of a red or golden color. They have long, sharp teeth on the palate and tongue, and generally a small speck of red on each side behind the front ventral (pectoral) fins; the flesh is of a pale yellowish red, or, when in good order, of a rose-colored red." *London edition*, p. 192, quarto, 1814.

Of the manner of taking this fish, Dr. Suckley in his monograph of salmonidæ, speaks with much pride of having captured some with artificial flies below the Great Falls of the Missouri. It is presumed they will take other baits as well as this.

PLATTE RIVER TROUT.—*Salmo stomias.* Cope.

(U. S. Geol. Surv. of Wyoming, p. 433, 1872.)

Specific characters.—Head large, broad, flat, not keeled, 4.25 times in total length of body; muzzle obtuse; diameter of eye enters length of side of head nearly five times; forty-two scales below first dorsal ray; dorsal fin midway between snout and caudal, which is not notched. Scales small; mouth large.

Color.—Indistinct brownish blotches on sides, and many black spots on posterior dorsal region, the caudal peduncle and the dorsal and caudal fins; anal unspotted; spots few in front of dorsal. Prof. Cope considers this species an ally of *S. lewisi, virginalis,* and *iridea.*

Habitat.—Platte River, Kansas. Will probably take any of the baits already mentioned.

SHORT-TAILED TROUT.—*Salmo brevicauda.* Suckley.

This trout resembles the *Salmo iridea*, but has larger and more slender head and body, and short narrow tail. It inhabits the fresh water streams entering Puget's Sound. It is generally captured in nets or by spearing, but will take the fly.

COLUMBIA SALMON TROUT, or Gibb's salmon.—*Salmo gibbsii.* Suckley.

Resembles *S. truncatus* and *S. gairdneri*, but the head is much larger.

Color.—Above, dark olive green well dotted with round black spots; reddish blush on sides. *Habitat*, Columbia River and its affluents. May be taken with net or hook.

KENNERLEY'S TROUT; Red Salmon Trout.—*Salmo kennerlyi.* Suckley.

This species may be recognized by its small head, one-seventh of its length; narrow deep body; red color; back spotted with black, and sharply forked tail. It inhabits Fraser's River, and is generally taken with net, but will readily bite at hook.

WARREN'S TROUT.—*Salmo warrenii.* Suckley.

This is a doubtful species, said to be found in Fraser's River. It somewhat resembles *S. iridea.*

BAIRD'S RIVER TROUT; Red Spotted Rocky Mountain Trout.—*Salmo bairdii.* Suckley.

This fish resembles *S. parkii*, but lacks pale green spots on the back and has a smaller head; it has also many characteristics common with *S. fontinalis*. *Habitat*, Clarke's Fork of the Columbia. Takes the hook readily.

PARKE'S RIVER TROUT.—*Salmo parkii.* Suckley.

Resembles *S. bairdii*, but has a larger head, more deeply notched tail, and many pale greenish spots on the back. *Habitat*, Kootenay River, Rocky Mountains. Will take the hook.

HOOD'S SALMON.—*Salmo hoodii.* Richardson.

This species properly belongs to the Atlantic coast fauna, and is found from Canada northward. A good description is given by Richardson in *Fauna Bor. Amer. iii., p.* 173.

NEWBERRY'S TROUT.—*Salmo newberryi.* Girard.

This is a doubtful species found in Klamath River, and may be the *S. iridea.*

REDFISH.

This fish is found in Payette Lake, Idaho, and in the Wallowa and Isabel Lakes, in the Wallowa Valley, eastern Oregon. Very little appears to be known of it. They are common enough in Alaska, where they run up the rivers from August to October, to spawn. It is barely possible that they are not identical with the Idaho and Oregon fish, though their habits are similar and their period of spawning about the same. They evidently belong to the family of *Salmonidæ*, and we so classify them. The fullest information yet published about them was furnished by the Idaho *World*, a paper published at Silver City, from which we quote :

About a hundred miles to the northward of Idaho City is "Payette Lake," as beautiful a sheet of water as can be found. This lake is the largest of a cluster of four or five situated in its immediate vicinity, and is about twelve miles in length by three miles (average) in width. It is both fed and drained by the North fork of the Payette River, which passes directly through it. Its waters are said to be hundreds of feet deep, and are as clear as the most finely polished mirror. The country around the lake is mountainous, and the scenery varied, but picturesque and beautiful. In it is found a species of fish known here by the name of "redfish," an appellation derived by their color, which is a beautiful vermilion, with the exception of the head and fins, which are of a dark earthy green color. The habits are similar to those of the salmon, and like the salmon they spawn and then die. The male and female are easily distinguishable, the colors of the male being much brighter than those of the female. They live in the deep water in the lake, and we have no account of one ever having been seen in the lake only when coming up out of the water

at the mouth of the river, when going up the river to spawn, which they do from about the last of July until nearly the last of October. When ascending the river, they travel in schools numbering from one to two or three hundred, and fishermen land them in large quantities by means of drag nets and seines. When fresh, or when properly cured, they are esteemed a greater delicacy for table use than even the mountain trout; but great skill and care, and, above all, great cleanliness, is required for their preservation in a manner for the table. Dried, they are preferred to either herring or codfish, but the best way to preserve them is in brine. Put up in this way—care being observed to have them perfectly fresh and perfectly clean—they are probably not excelled by any fish in the world. The writer has seen them late in the fall moving down the river as if returning to the lake, but such multitudes of them die along the stream that it is believed to be impossible that any get back alive. In size the "redfish" vary but little, being generally about twenty inches long, and weighing from three and a half to five pounds. Being unknown to both British and American fishermen, they are coming to be looked upon as confined solely to Idaho and Lake Payette, and the object of this article is to call attention to the fact of their existence, and to draw out an expression of opinion from persons capable of judging as to their place among the "finny tribe." Besides, they are a great delicacy, and it may yet be found practicable to stock the lakes of California, Oregon, and Nevada, and perhaps of all the Northern and Northwestern States and Territories, with them; the only apparent requisites necessary to their propagation being depth of pure, cold water, and a gravelly stream for their spawn.

PACIFIC RED SPOTTED SALMON TROUT; the Dolly Varden.—*Salmo campbelli.* Suckley.

This species inhabits chiefly glacial waters; is found in the northern streams of California and as far north as Alaska. They have whitish yellow spots just below the back, and red spots above the belly. Tail forked. It takes the bait greedily and rises readily to the fly.

BACK'S GRAYLING; Lesser grayling.—*Thymallus signifer.*— Cuv. and Val.

Specific characters.—Head about one-sixth total length, excluding caudal. Depth of body greater than length of head,

anterior ray of dorsal fin is in front of a point midway between the pectorals and ventrals. Branchiæ, 9; fin formula as follows: D. 24; A. 3-11; C. 8-18-7; P. 15; V. 10.

Color.—Ashy grey with small bluish spots. Dorsal fin spotted. *Habitat,* British America. Dall speaks of this species as being abundant in the small rapid rivers of Alaska, and states moreover that it is the only Yukon fish that will take the hook; is abundant in the spring. It is thought that almost any fly resembling the natural ones of the locality will answer as bait; for a showy lure a piece of grayling fin will answer.

MOUNTAIN GRAYLING.—*Thymallus montanus.* Milner.

Specific characters.—Form stouter than preceding species. Depth of body greater than length of the head; region of dorsal fin anterior to a point midway between the pectorals and the ventrals. The body is deeper than in the other American species, the length of the head is greater than that of *T. signifer.* The forking of the tail is less than in *T. tricolor.*

Color.—Resembles somewhat preceding species, but the red spots on the dorsal are semicircled by a thin border of emerald green. The ventrals also show a shade of green, and the caudal is plain in color. *Habitat,* Missouri River, Montana.

The same methods of capture as advised for preceding species may be employed for this.

WILLIAMSON'S WHITEFISH; Mountain Herring.—*Coregonus williamsoni.* Girard.

Specific characters.—Head enters total length five and a half times; mouth small and herring like; diameter of eye enters length of side of head five times; anterior margin of dorsal fin nearer the posterior edge of the base of the adipose than the extremity of the snout. Scales well developed, somewhat larger on dorsal than ventral region. *Color,* Bluish neutral tint above, silvery white beneath. *Habitat,* Utah to Washington Territory. Abundant in Provo and Sevier Rivers, Utah. They are taken in November in great numbers with hook and line, and a certain minnow for bait, *(Clinostomus tænia)* called "leatherside" by the Mormon settlers. They bite well and freely, affording excellent sport. A few are taken in Utah Lake by net, though seldom. In

the Sevier River they have been taken in August with grasshoppers. These were very much smaller than those from Provo. The largest specimen seen measured eighteen inches in length.

Another species of Coregonus is the *C. quadrilateirals*, from the upper great lakes of British America; and there are still two others that have been recently taken, the first from Chief Mountain Lake, and other waters on both sides of the Rocky Mountains, called by Prof. Milner *C. couesii*, the other caught by Mr. Henshaw at Lake Tahoe, which Prof. Gill calls *C. montanus*. As it did not take the hook at the time of Mr. Henshaw's visit, we can give no information as to the bait. The Indians, however, take large numbers in nets.

COUES' WHITEFISH.—Rocky Mountain Whitefish.—*C. couesii*. Milner.

This fish is very common in the Yellowstone, Montana, and Little Blackfoot Rivers, on the west side of the Rocky Mountains, where they exceed four pounds in weight, and afford much sport to the angler. They are very often taken with the fly, while fishing for trout. They are also taken in Chief Mountain Lake, on the eastern edge of the mountains.

The most marked feature is the extensive prolongation of the snout which protrudes far beyond the opening of the mouth. The head narrows regularly toward the anterior of the frontals, where two strong angles are found narrowing the head abruptly at the point where the short supraorbitals join, and the frontals and nasals continue forward in a narrow blade-like extension. The adipose fin is large, attached to the body almost to the posterior extremity, and is ensheathed in scales for a considerable distance from the dorsal line. The greatest height of body is equal to the length of the snout.

CYPRINIDÆ.

SUCKERS.—*Catostomidæ*.

These fish, although not taking the hook readily, can be secured with nets, spears, and such net-baskets as the Indians make use of.

SUCKER, of the Mormons.—*Pantosteus platyrhynchus.* Cope.

Specific characters.—Body elongate; head short and wide, entering total length five and three-quarter times; scales larger in caudal than near head; dorsal fin nearer muzzle than base of caudal. *Color.* Blackish above, yellowish below. *Habitat.* Provo River, Utah. Taken with bait of pork; also in net.

YARROW'S SUCKER.—*Pantosteus jarrovii.* Cope.

Specific characters.—Body not so elongate as preceding; head enters total length about five times. Dorsal fin intermediate. *Color.* Above, light brown with narrow dusky spots and clouds; a narrow light abdominal band. Chin and fins red. *Habitat.* Colorado, New Mexico. This specimen is the prevalent catostomoid of the Rio Grande Basin. I do not know if it will take the hook.

UTAH LAKE SUCKER.—*Catostomus fecundus.* Cope and Yarrow.

Specific characters.—Body thick; head enters total length five times; diameter of eye enters length of side of head six times; dorsal fin nearer end of muzzle than insertia of caudal, scales largest near caudal. *Color.* Brownish black above, yellowish beneath. *Habitat.* Lake Utah, Utah. Is generally fished for with nets but will occasionally take the hook.

Catostomus guzmaniensi. Girard.

Has also been taken in Utah Lake, but it is not well known.

HORNED CHUB. Jerker.—*Ceratichthys biguttatus.* Kirt.

Specific characters.—Head enters length four times; depth about the same. Scales large. Fin formulæ: D. 1, 8; A. 1, 7. *Color.* Bluish olive; fins light orange. Bites readily at any bait. This fish was discovered in 1872 by Dr. Yarrow and Mr. Henshaw in a small creek near Harmony, Utah. It is the common eastern horned chub, which is widely distributed from Pennsylvania to Utah. It may be found elsewhere further westward.

A species of chub is found in Lake Utah of which the scientific name is in doubt, consequently it is passed over with the re-

mark that it bites well at grasshopper, pork and worms, and is good eating.

With regard to the fishes to be had in the vicinity of Provo, Utah, it may be stated that it is the only place west of the Rocky Mountains where an abundance of angle worms may be had, the species having been introduced by an enterprising physician from the east.

HALF SCALED CHUB.—*Gila seminuda.* Cope and Yarrow.

Specific characters.—General appearance similar to others of the genus. Head enters total length five times. Diameter of eye enters length of side of head four times. Scales small and subcircular.

Color.—Purplish brown above, silvery beneath. Fins yellowish to pink. *Habitat.*—Rio Virgen River, Utah.

This species is very abundant in the river named, near Washington, Utah, and hundreds are taken by hook and line. Bait used, grasshoppers.

MUGILIDÆ.

MULLET of the Mormons.—*Siboma atraria.* Girard.

Specific characters.—Body elongated; head enters total length a little less than four times; mouth small; eye enters length of side of head five and a half times. Anterior margin of dorsal fin nearer the insertion of caudal than end of snout.

Color.—Brownish black above; greyish white below. *Habitat.*—Utah, Colorado, Idaho, New Mexico, in short, is one of the most abundant species in the Rocky Mountain Basin. Is not generally fished for, as the flesh is poor and insipid during the warm months. Will not generally take the hook except it be baited with grubs or larvæ of which they appear to be very fond. Are sometimes taken in the trout nets at Lake Utah weighing from five to seven pounds.

LONG HEADED MULLET.—*Siboma atraria*, var. *longiceps.* Cope.

Is a fish greatly resembling the preceding, which is found in Nevada, Utah and New Mexico; bites freely at grasshoppers.

PACIFIC COAST FISHES.

PERCIDÆ.

San Francisco Perch.—*Ambloplites interruptus.* Girard.

This is one of the most common fish on the Pacific Coast. It is known as the sea perch, porgy, or surf fish. They are the same fish that are known at the east as the cunner, nipper, bergall, chogset, blue perch, etc. The general color is black, mixed with brown, with faint transverse bars of an uncertain dusky hue. The largest exhibit a light orange tint throughout the whole body, with the head and gill-covers of a chocolate color, mixed with light blue, and with blue fins and general bronze coloring in some lights. Like all the perch tribe, on the back is a stiff fin with spines. They are caught most plentifully near rocky shores; they take almost any bait. It is a tolerably good and sweet pan fish, but they should be eaten as fresh as possible, as their flesh is very soft.

The perch, which inhabit chiefly the rivers, abound much also, in some parts of the bays; they are white with blotches of a dirty black on their sides. The quality of their flesh is much better than that of the sea perch. They are found but in small numbers on the ocean coast; they run about two pounds in weight.

Rockfish.—*Paralabrax clathratus.* Girard. Dusky Rockfish.—*Paralabrax nebulifer.* Girard.

There is a numerous variety of these rockfish of several colors, brown, black, and bright red, of which those mentioned are the most prominent. They are taken in plenty wherever the bottom is rocky. They weigh from half a pound to twenty or thirty pounds. You fish as deeply as possible for them, and they are almost omnivorous in their appetites, taking all sorts of worms, flesh and small fish. Their meat is white, and good in flavor and firmness.

TRACHINIDÆ.

Of this family the *Heterostichus rostratus* is very common.

SPHYRÆNIDÆ.

The barracouta, or barracuda, (*Sphyræna argentea*, Girard) is very common, a voracious and very active fish, taken by trolling just outside of the kelp.

SCORPÆNIDÆ.

ROCK FISH; rock cod.—*Scorpæna guttata*. Girard.

Bites best at "lobster," (so called,) or at the flesh of *Haliotus splendens*, the "ear-shell."

ROCK COD; red fish.—*Sebastes rosaceus*. Girard.

Is quite common, frequenting the vicinity of islands, and as it bites readily at a baited hook, furnishes excellent sport. It varies from sixteen to twenty-two inches in length. The upper regions and sides are of a light purplish brown, the latter being mottled a shade darker. The superior surface of the head is spineless. Several other varieties, or species, are found south of Astoria, Oregon, namely, the *paucispinis*, *auriculatus*, *melanops*, and *fasciatus*, which differ only in minor details.

SCIÆNIDÆ.

LITTLE BASS. *Liostomus lineatus*.—Ayers. Common Kingfish. *Umbrina undulata*. Girard.

Not abundant.

ATHERINIDÆ.

SMELT.—*Atherinopsis californiensis*. Girard.

This beautiful silvery fish, with its silver lateral line extending from its shoulders to its tail, is common along the Pacific coast, and are taken in great quantities from February 1st to October. They average nine inches in length, and individuals have been taken that weighed two pounds. A fish of the latter size affords fine play for the angler. They are taken in the bays, especially in

San Francisco Bay, with a cane, bamboo, or other rod from fifteen to eighteen feet in length, made either with or without joints, and a light but strong line, either fastened to the top of the pole, or connected with a good large four-fold multiplying reel, at the end of which line there is rather a heavy lead or sinker, above which are tied three or four small hooks about a foot apart, baited with pieces of worms, found among the mussels which attach themselves to the piles of a wharf or bridge. The smelts come up and return with each tide to cast their spawn or melt on those shores and flats of the bay which are either sandy or muddy. In the full season, which is in April, they come up from the ocean through the Golden Gate in enormous quantities, and bite generally so ravenously at the bait offered them that it often happens that the angler hooks and lands three, or even four of them at one time, and when three or four of them weigh each over half or three-quarters of a pound, the angler has his hands full to secure them all on *terra firma*. In the height of the "take," when there are a hundred rods plying at once, the scene is a very lively and interesting one. They are taken about three feet below the surface, and the bait is kept actively in motion. A float may be used, or not, at pleasure.

BATRACHIDÆ.

TOADFISH; Porous Catfish.—*Porichthys notatus*. Girard.

A good edible fish; bites very freely at the hook, and is abundant, but repulsive in appearance.

GADIDÆ.

TOMCOD. *Morrhua proxima*. Girard.

This nice, delicate little fish for the table, even to those of epicurean tastes, is very plentiful in bays, and in some of the creeks, and affords much amusement, if not great sport for anglers. It frequents near the bottom for its food, and is readily caught with a rather stout hand line and a tolerably heavy sinker and small hooks, say two or three, and No 4 or 5 in sizes, fastened on near the sinker about nine inches apart from each other. The line should be about sixty to eighty feet in length, to be thrown out

from the wharf as far as it will go. The best baits are mussels or sand worms, to be purchased near the fishing grounds, and which are obtained from the piles under the wharves, or in the swamp sands near the shores of some parts of the bay. Or this much sought after inhabitant of Pacific waters and its bays and inlets, may be angled for successfully with a common rod of a medium length, furnished with a small sized line and common multiplying reel, with a much lighter sinker than the one recommended for hand line fishing. This can be thrown out as far as convenience will admit of, and to any one used to manipulating skillfully a rod, reel and line, is a mode much preferable to the hand line process, and much pleasanter, because it enables you to sit at ease on the wharf without having to get up every time a fish is hooked and cast out again, as with the hand line, and you can wind the fish quickly up by means of your reel while in a sitting posture.

The Tomcods run in the largest schools when the tide water is flowing only moderately fast and rather muddy, but not too much so. They bite best in those parts of the water on which the sun is shining. There is the same remarkable difference in this fish's biting as in others. Generally the catch is good, but there are a few days that are nearly or entirely blank. They feed against the running tide, both on the ebb and flow. Their roe, both hard and soft, is considered a great delicacy with some persons. They spawn in early spring.

PLEURONECTIDÆ.

Flatfish or Flounders.

The *Platichthys rugosus*, or rough flatfish, is the representative type of the *pleuronectids*, and is quite abundant at the mouth of the Columbia, but especially in Puget Sound. The eyes are on the left side, the inter-ocular space being of moderate width ; the right is a dark yellow, and the left a reddish brown hue ; the fins are olivaceous, dorsal and anal having alternate bands of black, merging into longitudinal on tail, the ventrals and pectorals being unicolor. The scales are rugose. The length varies from seven to twelve inches. It is captured in nets, but can also be speared or taken with the hand after the recession of the tide, as it lies high

and dry on some of the flats. The Indians slaughter large numbers along Shoalwater Bay and Gray's Harbor, where they crowd in immense throngs. When started, this fish will dive right into a mud bank, stir it up, and escape under this cloak of concealment. There are a number of other varieties, namely *Platessa bilineatus, Platichthys rugosus; P. umbrosus; Paralichthys maculosus,* or spotted flounders, and many others.

THE HALIBUT, (*Hippoglossus vulgaris*), ranges from Oregon to the Aleutian Isles, and up to the ice line of Behring Sea, and westward to the Ochotsk. The specimens caught weigh from one to four hundred pounds, and some are said to exceed even the latter weight. The Russians paid a slight attention to this fish formerly, but they do nothing with it at present, if we exclude the few caught for the table. The Alaska variety is deemed superior to its eastern kindred in firmness and delicacy of flesh, and as will be seen excels it also in ponderosity.

LABRIDÆ.

SEA BASS.—*Labrus pulcher.* Ayres.

This fish is nearly as silvery as the salmon, which it much resembles. At Fort Point, near the Golden Gate, where I sometimes fish, there is a large sea wall, at the end of which the rolling waves from the Pacific break with great force. In the eddy formed by these billows, the bottom of which is very rocky, these fish are often caught in company with the sea trout. They are also taken by trolling just outside of the kelp.

SALMONIDÆ.

Of the Salmon of the Pacific coast, Doctor Suckley has given in his monograph a list of no less than twenty-two anadromous species—that is, species running up from the salt water to spawn; the young remaining there for a greater or less time, then returning to the sea, in which they abide, except during the period of reproduction. Of these twenty-two, however, six feed freely in fresh water, and can hardly be called marine species. The remaining sixteen are enumerated as follows:

Salmo scouleri. Hook-nosed salmon; fall salmon.

S. proteus. Hump-backed salmon. (Alaska).
S. cooperi. Cooper's salmon. (Columbia River.)
S. dermatinus. Behring's Sea salmon.
S. consuetus. Yukon River.
S. canis. Dog salmon; spotted salmon. (Puget Sound.)
S. quinnat. (California salmon.)
S. confluentus.
S. aurora. Red char. (Columbia River.)
S. argyrtus.
S. paucidens. Weak-toothed salmon. (Fraser River.)
S. tsuppitch. White salmon. (Columbia River.)
S. clarkii. Clark's salmon. (Columbia River.)
S. gairdneri. Gairdner's salmon. (Columbia River.)
S. richardi. Richards' salmon. (Fraser River.)

The *S. quinnat* of the Pacific Slope is a type of the salmon of that coast, and is possessed of similar anatomical characteristics, differing but slightly in form, color, and markings from the *S. salar* of the Atlantic Slope, and of the tributaries of the Great St. Lawrence Basin. Description by Richardson, see his "Fauna Boreali Americana."

"General tint of back, bluish-grey, changing after a few hours' removal from the water, to mountain green; sides, ash-grey, with silvery lustre; belly, white; back above lateral line studded with irregular rhomboidal or star like spots, some of them ocellated, resembling an eye; dorsal fin and gill cover slightly reddish; tips of the anal and pectorals, blackish-grey; the dorsal and caudal thickly studded with round and rhomboidal spots; back of the head sparingly marked with the same; whole body below the lateral line, together with the under fins, destitute of spots.

"*Ray formula:* Br, 20, 20; D, 13; C, 30; A, 16; V, 10, P, 14. *Spe. Char.* Adult—Body fusiform in profile; compressed; head forming a little more than one-fourth of the total length from snout to the end of scales on the caudal. Maxillary bone curved, extending beyond the orbit; anterior margin of the dorsal equidistant between the extremity of the snout and the insertion of caudal; dorsal region olivaceous, flecked with irregular black spots; dorsal and caudal fins similarly spotted. Region beneath the lateral line unicolor, silvery along the middle of the flanks, and yel-

lowish on the belly; inferior fins unicolor; head above, bluish-grey; sides, bluish-grey."—Girard. See U. S. Fish Commissioners' Report on Fresh Water Fishes, 1872 and 1873. Page 105, *et seq.*

The scales are of moderate development and conspicuously larger on the area constituting the flanks, and which is traversed by the lateral line. They are sub-ovoid in shape, slightly narrower anteriorly than posteriorly, upon which margin the concentric stria, or channel-like lines are obliterated. Those of the lateral line are more irregular in their outline, and proportionally much larger than those on the abdominal region, where they are slightly larger than on the dorsal region.

This species inhabits "the Pacific coast from San Francisco northward, probably to Behring Straits, entering the larger rivers of the coast annually in vast shoals. We are told that in the Sacramento and San Joaquin Rivers, they are most abundant, ascending the latter in July and August to spawn, when they travel a hundred and fifty miles through the hottest valley in California to reach their breeding grounds, where the temperature of the air and water reach astonishing figures—where often at noon it is rarely less than 80° Fahrenheit, and where the average temperature of the water at the bottom of the rivers is 79°, and at the surface 80°." These facts we learn from the Report of the California Fish Commissioners, for the years of 1874 and 1875. They aver that those salmon which ascend the San Joaquin appear to be of the same variety as those of the Sacramento, but average smaller in size. That they ascend this river when the temperature is so high, explodes entirely the theory formed by naturalists, that salmon can not live below the 43d parallel in the streams of our country. This fact renders it probable, as the California Commissioners affirm, that the Pacific salmon will yet be planted in all the waters of the Southern States that take their rise in the mountainous regions of that portion of the Union. The enterprising and intelligent Commissioners of Fisheries of California, are exploding each year antiquated notions regarding the salmon. If the salmon of the San Joaquin ascend to the sources of that river to spawn, they go below the 37th parallel, many degrees below where naturalists have declared it to be impossible for them to exist.

The *S. quinnat* spawns, according to the observations of Mr. Livingston Stone, Deputy U. S. Commissioner of Fisheries at the sources of the Sacramento, in July; in the little Sacramento and McCloud Rivers in August; at the mouth of the McCloud in September; and in the smaller tributaries of the main river, at and below Tehama, in October and November. The flesh of the *S. quinnat*, in its best estate, is juicy, rich, and delicious. The heaviest fish weigh sixty pounds, while the average weight, according to some authorities, is twenty-five pounds. In shape, this salmon is more stocky than the Penobscot salmon. Much has been said regarding the comparative merits of the *S. salar*, and *S. quinnat*, gastronomically. Both salmon are full-flavored, and possess every requisite for a high economical value; and the fact of the superiority of one over the other will soon be settled, as they are being cultivated together in both extremes of our country, and their gastronomic qualities will soon be settled by gustatory trials, and judgment rendered accordingly.

Although we have said that *S. quinnat* is the type of his congeners of the Pacific, it is important to know that the habits of the many supposed varieties of salmon differ very greatly, especially as to their periods of spawning, the times of running up into the rivers, extending all through the year from first of April to first of January; January, February and March being the only months in which they are either wholly out of the rivers, or in the act of descending to salt water. Some spawn every year, and some (like the humpback) only in alternate years. Speaking generally, without regard to distinction of varieties, we may quote from a private letter from Horace D. Dunn, of San Francisco, who is identified with the natural history and culture of the salmon. The writer says:

"The first run of salmon is found in the mouths of the numerous small rivers and creeks that flow into the Pacific Ocean from the coast range of mountains from Carmel River, near Monterey, north to the boundaries of Oregon. The grilse make their appearance about the middle of October, followed in November by the adult fish. These remain at tide water, waiting for the rise caused by the heavy rains of December, which enables them to reach their spawning beds at the heads of the streams. The coast salmon are said to be a distinct variety from those spawning in the Sacramento River and its tributaries, and return to the ocean in March and

April. With these salmon comes a large species of trout, known here as salmon trout, which have similar habits, and return to the sea about the same time. This last fish is long, round, and comparatively slender, with a small head, and ranging as high as seventeen pounds in weight. One of these weighing only eight pounds, caught in good condition last spring, measured thirty-two and a quarter inches in length. Any salmon of the same length would weigh from twenty to thirty pounds. I am thus particular, as some parties here claim the fish for a variety of salmon instead of a trout.

"The first run of Sacramento salmon arrive in San Francisco about the first of January. They remain within the influences of tide water until April and May, when the waters of the river having cleared, from the ending of the rains, they proceed to the Upper Sacramento and its tributaries to spawn. A second run of salmon comes in from sea in May, and goes up the Sacramento without remaining in the bay. These fish ascending the river are found in July and August in the vicinity of Mount Shasta in pools, awaiting their time to spawn, and can then be caught with hook and line. During the months of January, February, March, and a portion of April, salmon are caught in the bay and rivers in unusual numbers, the cause of which I will explain further on. In these months at least ten thousand were caught by hook and line from the railroad pier at Oakland, three miles from this city. An unknown number, but probably half as many more, were taken at other points around the bay. These fish ranged from one to fifteen pounds each. The sport being a new one, and prosecuted mostly by novices with insufficient tackle and from a pier fifteen feet above the water, the largest fish were almost always lost after being hooked. When you consider that the hooks were on single and generally inferior gut, on lines attached to stiff bamboo rods without reels, scores of fishermen, almost elbowing each other, with open piling beneath them coated with mussels, you will readily understand that only the smaller fish were likely to be taken.

"As before stated, the number of salmon in the bay has become unusually large. This comes from the close season in 1873 (the first we ever had) from August first to November first, and the putting into the McCloud River the same year of four hundred thousand young salmon, artificially hatched out by United States

Fish Commissioner Livingston Stone, under an arrangement made with our Fish Commissioners, Messrs. Redding, Throckmorton and Farwell. The spring run of adult salmon in the Sacramento also was the largest known for many years to professional fishermen, fish weighing from fifteen to twenty-five pounds, at times in the city market selling from a quarter to half a dollar each."

The question whether salmon die after spawning, and before returning to the sea, seems to have been satisfactorily determined by the experiments of Livingston Stone, Esq., of the United States Fisheries Commission, who built a dam over one of the rivers, impassable to salmon, which, he says, "settled the question finally, and proved beyond a shadow of doubt, that of all the thousands of Sacramento salmon that spawned in the McCloud, not one in a hundred returned to the sea alive." In the Columbia and larger rivers, where the fish have hundreds of miles of journey to perform it is not remarkable that in their tremendous efforts to fulfill the callings of nature in the way of procreation, not only that few should ever survive to return to the sea, but that as many as do reach the headquarters should be able to get there at all. Of those that succeed a very large proportion arrive with their heads battered out of shape by their persistent efforts to surmount the obstructions of the ascent.

As to what salmon feed on: This mystery has also been solved to satisfaction, so far as the Pacific fish are concerned. While in salt water they eat, and eat ravenously, their food being smelts and other small fish, with some crustaceans. After they enter fresh water they lose their appetite and eat nothing, a good evidence of this being found in the fact furnished by J. W. & Vincent Cook, proprietors of the Oregon Packing Co., on the Columbia River, who have stated that out of ninety-eight thousand salmon examined by them in 1874, only three had anything in their stomachs, and these three had the appearance of having just left salt water.

It used to be denied, too, that the salmon of the Pacific coast would take a fly, but the ignorance on this subject arose principally from the fact that strangers did not try them at the proper seasons and places, while the resident anglers, who were in the habit of taking them with flies, were altogether reticent on the subject.

The salmon of the Sacramento, McCloud and Pitt Rivers are said to take the fly pretty well either early or late in the season, but about the middle of the season, or the months of June or July, they take nothing well but salmon roe, and this is rather a troublesome bait to keep on the hooks, owing chiefly to the swiftness of the current, (running about ten miles an hour,) and the somewhat shyness of the fish in seizing the bait, although there is no lack at all in their numerous attempts to grasp it. The fish keep well in shore to avoid the force of the current when ascending the streams, and, as in the east, are best taken during the hours of twilight.

While in tide water, the salmon will bite freely at bait, spoon, and frequently flies, a peculiarity that would give the Pacific fish precedence as a game fish, over his Atlantic cousin, which seldom takes bait in tide water, and never spoon, to our knowledge. Absence of black flies and mosquitoes is another advantage which California possesses over the East; besides, the climate has no greater severity than white frosts at night, with generally sunny days. In the coast ranges in autumn, and on the Sacramento in summer, fishing can be had with all of the comforts of the older agricultural States. The close season for salmon extends from August 1st to November 1st. The Indians not being subject to the prohibition of the game laws, are allowed to take game at any season of the year, and they take the salmon when they are in the river to spawn, at which time they come in in immense numbers. The Indians take them by means of spears, with handles often twenty-five feet in length, and the *modus operandi* is as follows:

The Sacramento near its head is very swift, and in its passage across different ledges of various degrees of softness it excavates large pools or holes in its bed, each having a small fall at its head and a rapid beyond. The water in these holes, which are often very large, is comparatively still, and they make welcome resting places for the tired salmon, before they attempt the passage of the rapid above; they collect in them in great numbers, the water is beautifully cold and clear, and the fish can be seen crowded together on the bottom. The Indians repair to one of these holes to the number of twenty or more, and a fine picture they make as they stand in position to strike when the word is given, nearly naked, with their brown skin shining, and eyes glittering in antici-

pation of the sport. Some station themselves at the rapids above and below the hole: others wade out to an isolated rock, or a log projecting into the stream. All hold their spears in readiness, and at a grunt from the leader they commence business. At the first onslaught all generally manage to secure a fish, which is detached from the spear and thrown on the bank, the spears, by-the-way, having barbs of steel, which become detached from the stock when they enter the fish, and being attached to the shaft by cords, turn flat against the fish's side, and make escape impossible when the salmon is pierced through. The Indians proceed silently with their work, and secure a great many fish before they escape from the hole. Sometimes three or four hundred are thus speared out of one pool. They are very cautious about making their preparations so as not to frighten the fish till all are ready, and then to confuse them by a sudden onslaught. The fish are split open and dried in the sun on the bushes, which present a curious appearance all hung with the bright red flesh; they are then slightly smoked and reduced to small flakes, and laid away for future use. The roes also of the "mahalies," as they call the females, are carefully saved and dried, and considered a great delicacy by the Indians.

To give in detail the habits and specific characteristics of Dr. Suckley's eighteen species of salmon, would require a considerable volume in itself, which we trust some competent person will prepare at no distant day. Their range is from the Sacramento northward to the boreal regions of Alaska, where the salmon have been known to attain a weight, on authentic report, of ninety-five pounds. The government agent at Fort Nicholas, near the head of Cook's Inlet, has asserted that the average weight of sixty-three salmon he had taken was fifty-two and a quarter pounds (!) which quite "takes the rag off" anything known on this Continent or in Europe. The best information at present attainable bearing on this whole subject, is contained in Dr. Suckley's Pacific Railroad Reports, as we have heretofore stated.

EMBIOTOCOIDÆ.

Viviparous or Sapphire Perch are very abundant all along the coast, and will bite at hook baited with anything. The *E. Jack-*

soni (Agassiz), is perhaps best known, a fish from eight to eleven inches in length. Its body is compressed, oval and covered with scales of medium size, which are peculiar in being cycloid. Another peculiar, and, indeed unique feature, is that at the base of the long dorsal fin are two or three rows of scales separated from those of the body by a rather broad and deep scaleless furrow. The anterior part of this fin can be folded back and concealed. The female genital apparatus in a state of pregnancy consists of a large violet bag, so transparent that one can distinguish through it the shape, color and formation of the small fish with which it is filled. The fish when ready to escape are miniatures of their mother in shape and color, and fitted to seek their own livelihood. This genital sack seems to be nothing but the widened lower end of the ovary, and the pouches into which it is divided within are merely a part of the ovary itself. In each of these pouches a young one is wrapped up as in a sheet, and all are packed in tightly. It is, therefore, a normal ovarian gestation. The external genital opening is situated behind the anus. As many as nineteen young have been found in one fish. The males are not quite as large as the females, either in length or circumference.

There is a great variety of these fishes, differing much in size and color. The following are the species generally met with :

E. webbi.	Girard.	*E. cassidii.*	Girard.
E. lineata.	"	*E. ornata.*	"
E. argyrosoma.	"	*E. perspicabilis.*	"
Phanerodon furcatus.	"	*Damalichthys vacca.*	"
Rhacochilus toxotes.	Agassiz.	*Abeona trowbridgii.*	"
Holconotus rhodoterus.	"	*Hysterocarpus traskii.*	Gibbons.
Ennichthys megalops.	Girard.	*Amphisticus argenteus.*	Agassiz.
E. heermanni.	"	*Amphisticus similis.*	Girard.

The silvery perch (*Damalichthys vacca*), never takes bait. It is of a greyish olive color; scales have a silvery and golden reflect; fins unicolor. The male carries the sac on the anterior third of the anal.

The golden barred perch (*Holconotus rhodoterus*), is the most abundant species of the family. It has a small mouth, sub-conical head, large eyes, and the colors vary from a bluish grey above to a silvery white, with three tranverse bars of golden on the belly

and sides. It arrives in immense schools as early as May, keeping close to the surface, so it is caught quite readily. It bites freely at a hook baited with salmon roe; but the mode of taking it adopted by the Indians is to push their canoes among a school, and as it has a habit of leaping out of the water, the canoes are filled in a short time, especially when the fish are crowded towards the shore. It leaps to its death quite frequently, without any other motive than sportive playfulness. It has rather good edible qualities, but this does not induce fishermen to seek it. There are quite a number of other varieties; all are good pan fishes.

When scientific attention was first attracted to them, four and twenty years ago, it was generally supposed that the discovery was a new one, but that was a mistake. In 1769, a transit of Venus was to take place on the third of June. The event was of such importance that an expedition was sent from Paris to observe the transit at Cape St. Lucas, at the extreme southern end of Lower California. After the astronomical observations were finished the party went up the coast some distance. On their return to Paris, the naturalist of the expedition reported that on the coast of California were found sea perch which had their young alive, and when the small fish were squeezed out of the parent they would swim with great celerity.

CLUPEIDÆ.

A few of the Clupea are occasionally met with on the California coast. In Alaska the family is well represented, there being some four or five species, which are allied to their Atlantic congeners, though different in color and minor anatomical outlines. The interior salt water basins contain myriads of them in June and July; and they extend in apparently the same density from the Ochotsk and Behring Seas to the southern coast of Oregon. The natives fish for them by placing their canoes among a school and hurling them in with paddles containing rows of nails. While the season lasts it is a busy one, for great are its results. This fish could be used to excellent advantage as bait in fishing for cod; or if cured, it would meet a ready sale in the markets of California. Myriads can be trapped in weirs or hauled with seines; more

indeed than could receive the attention deserved to render them equal to the best smoked or salted varieties of Scotch herring.

Nearly all the marine species of the west and northwest Pacific, except the salmon, will bite freely at the flesh either of the large crayfish (called lobster by the natives), or at the shell fish known as *Haliotus splendens*.

Besides the species enumerated there are many others, of more or less commercial or local value. Of the *Heterolepids*, the best is *Chiropsis pictus*, which is known as sea trout and rockfish in California. The Indians of Fuca Straits capture another, the *Oplopoma pantherina*, but for this there is no vernacular. The dorsal and lateral region is spotted black; beneath it is a reddish-brown, and above a blackish brown. The *Chiropsis nebulosus* is black on the upper region, olivaceous beneath, and the caudal is sub-concave posteriorly. It seems to prefer the brackish mouths of rivers subject to tide-water.

There is another so-called sea trout of a dark greenish black color, spotted on its sides with red. Its form is rather long, like the trout family. They are very game and lively, and are a good fish for the table. The sculpins are very numerous, and bite freely at a hook, but they are not used at the table, owing to the insipid character of their flesh. Some of the sturgeon, known there as sea bass, weigh from forty to one hundred pounds. In the spawning season they run as far as the Shoshone Falls, a distance of several hundred miles from the ocean.

The anchovy (*Engraulis mordax*) frequents Shoalwater Bay in countless myriads; they are so dense, in fact, that they can be taken with the hand in large numbers on the flats at any time during the summer. This is equal to the best French sardine, and if canned like it, could be worked into a prominent industry. The body is subfusiform; deep bluish brown above, silvery beneath.

Among the non-recognized fishes of California is a species taken in the salt marshes in Marin county, which lives in a hole in the ground, like an animal. The Academy of Sciences has a specimen. It looks like an ordinary "bull-head," and the skin is eel-like. They seem to have the habits of an eel more than ordinary fish, and the flavor of their flesh is also similar to an eel's. The holes are similar to those made by swallows, and are in such a

position that the entrance is under water about half the time. The tide rises here about six feet, and the mouths of the holes are about three feet below high-water mark. They go straight into the bank a short distance and then turn down, so that when the tide falls below them they are still filled with water, although the entrance may be two or three feet above the water at low tide. The Chinese laborers gather great quantities of them at low tide, by slicing off a section of the bank with shovels. Fishing with a shovel is a method not laid down in the books.

SOUTHERN INLAND FISHES.

WHEN we attempt to distribute our fishes geographically, we cannot justly include Virginia and Maryland within the limit of Southern States, because so many of their fishes are common to those of more northern waters. Indeed it is difficult to define boundary lines anywhere, as large numbers of the ichthyic fauna of one region overlap or blend with those of the region next contiguous. In the Southern States, strictly speaking, that is, in the country lying south of a certain line of latitude (say thirty-eight degrees) very few of the inland fishes afford superlative sport to the angler. The waters are warm, sluggish, and muddy throughout three-fourths of the entire area, and not adapted to the finer grades of fish; those that are found in them belonging principally to the families of *Percidæ* (Perch), *Cyprinidæ* (suckers, chubs, etc.), and *Siluridæ* (catfish). The mountain trout, (*Salmo fontinalis*) is, however, found in the mountain streams of their extreme northern boundary, where altitude compensates for latitude, and supplies all the conditions and requisites of their natural habitat in colder climes. In treating our subject, however, we shall designate all those edible fishes which take the hook that are found anywhere within the area of what are geographically known as the Southern States, including both Virginia and Maryland.

From the characteristics and habitat of the fishes enumerated, as well as because of the warmth and muddy condition of a large proportion of the southern waters, especially in the extreme south, it will be readily perceived why the gentlemen of the south are not anglers. With the exception of the black bass, or trout, there is really no fish beyond tide-water that offers any inducement whatever. The range of the "trout" fortunately is large, and there are many clear waters where he thrives. Gentlemen are beginning to learn that a new source of enjoyment is offered by his capture, and are really becoming interested in the subject. Practice at home,

with their limited opportunities, will enable them to better enjoy their excursions to the north and east, where the field is wider and the varieties of fish more gamy, if not more numerous. The fishes of the south, however, afford a valuable contribution to the larder; and yielding some sport as well as food, attract the attention of fishermen of the poorer classes, who may be found at all times angling in their primitive methods. Still-fishing with bait is perhaps their most scientific method; nevertheless they have considerable knowledge of the habits of the finny tribe, and manage to lure or oust them from their hiding places by all manner of contrivances.

In the extreme south, and indeed, in Missouri and Tennessee, as well, the low swamp lands are interspersed with lakes and traversed by bayous which are inhabited by innumerable fishes of low degree, beavers, otters, turtles, alligators, and the like. The swamps are frequently inundated during the winter and spring, becoming vast seas of water, obliterating all landmarks, and rendering it impossible to locate the lakes and bayous. When the water recedes, there is left a deposit of mud which takes some time to dry. The principal growth is cypress and gum, both sweet and black, the other trees being killed by the deposit. As soon as the swamp dries the fishing begins, and continues good as long as it is in that condition. As soon as the heat of summer has thoroughly warmed the waters of these lakes, and has somewhat reduced their volume, the season for "muddying" begins. The appliances for this sport are very few and simple. They consist of several cotton hoes, gigs, a dip net or two, or, in default of that article, a basket attached to a light staff, and some splunges. The last-named articles are made by inserting a hoe-handle into a hole bored in the centre of a piece of pine plank, eight or ten inches long, and five or six inches broad.

After reaching the lake, the negroes, who do the muddying, enter it with their hoes and splunges and wade along, stirring up the muddy bottom as they advance. In a very few moments the perch commence to jump out of the water, and a large and game fish, styled in this section a trout, makes its appearance at the surface. Now is the time for the gigs to come into play. Many use the three-pronged gig, resembling the representations of the tri-

dent, as seen in the pictures of Neptune in the Mythologies; but those who pride themselves on their skill, will use nothing except the small, single-pronged gig, attached to a bamboo cane, eight or ten feet in length. It is by no means an easy thing to gig a trout, for they move with great rapidity, and even when struck, often break away. As the water becomes muddier the perch cease jumping, and appear at the top of the water gasping for breath. The bream soon follow them, and are easily captured with the net or basket, and even with the hand. The sucker is the next to appear, and his curiously shaped mouth is the only part of him to be seen, which at a little distance can, with difficulty, be distinguished from an air bubble. A well aimed blow with the gig, directed a few inches below the seeming bubble, will almost certainly result in his capture. And thus the work goes on until at last the most sluggish of the colony are unearthed, brought to the surface and captured.

Every bayou has its colony of beavers, and it is frequently necessary to cut their dams, so as to let off the superfluous water, and force the fish into a smaller compass, reducing their feeding grounds, whereby they are more easily taken. The beaver are prevented from repairing their dams by hanging up at the breach some article of clothing, or a newspaper. They are a great nuisance, and almost worthless. A short time ago a gentleman in Mississippi shipped to St. Louis a pack of seventy-five or a hundred beaver pelts, to a firm who advertised for them. They did not fetch enough to defray expenses (cost of traps and freight). They keep hundreds of acres of land overflowed the entire year, and when their dams are located on bayous that run through fields, they cut down the corn or cotton to keep their dams in repair. The alligators rank next to the beavers as nuisances, being valueless except for their hides and oil, though their flesh is fed to dogs. The female alligator lays her eggs in July. She gathers together all the bushes, sticks, trash, etc., on a spot that does not overflow in summer. She piles it up like a brush heap or hay rick. She then crawls under and deposits her eggs on the ground. She stays about the nest on guard until the young come out, when they go immediately to water, and never return to the nest. They remain with the mother until fall; then disperse to hibernate. We have

never seen more than one old one about a nest, yet we have frequently found from forty to eighty eggs in a nest, and believe they were deposited by the one female on guard. In an extensive low swamp, where high land is scarce, one sometimes finds the ground occupied by several nests within a few yards of each other. These nests are all taken off in the winter by the overflow. When first hatched the youngster is about four inches long, and will give battle upon the least provocation, and die game. Alligators are never known to attack a person. When they are approached on land they will blow themselves up as if their lungs extended to their toes, and emit a most disagreeable odor; but if opportunity offers, will retreat to the water.

The soft shell turtle is indigenous to only the waters of the South. Usual weight about ten pounds, though sometimes caught that will weigh twenty. It is unsurpassed by any of its congeners, and is the equal of the diamond-back terrapin of Maryland. It is taken with line or cut bait.

But as beavers, alligators, and turtles, are not fish, although denizens of the waters, we will proceed to our enumeration:

PERCIDÆ.

Trout; lake trout; chub; black bass; green perch.—*Micropterus salmoides.*

This is the best and most common fish throughout the south, and possesses all the game qualities of its cousin german, the black bass proper, (*M. nigricans*) which is also found in many of its more northern waters, and which, having been referred to extensively elsewhere, needs no further mention here. *Grystes salmoides*, or the southern chub, is the most abundant fish in mill ponds, and also frequents canals and quiet stretches of water in rivers. It greatly abounds in the lakes, and is called the lake trout —a gross misnomer, even greater than the name of chub. It is a bass and very closely allied to the black bass of the Ohio, which has been introduced into the Potomac. There are some slight but very distinct organic differences, which while showing that both are of the same genus, they differ in species. They bite and watch their young alike; but the chub likes still water, and is not averse to mud, while the black bass prefers running water and rocky

bottoms. It chooses for its abode deep holes, and the shelter of logs and trees that may have fallen into the water.

Color.—Head and body dusky above, often with a greenish or bronzed tint; lower jaw and belly white; opercle with a bluish-green spot at its angle. Along the flanks runs a dusky band which is more or less apparent according to the age of the fish. It is most remarked in the young. Fins yellowish. This fish grows to two feet in length, and has been taken weighing twelve pounds. [For specific characteristics, see Black Bass, in Northern Inland Fishes.]

Bass fishing is habitually practiced in the Potomac in April, and from April to June, at which time the fish run up the river to spawn. We are not sure but that the first of May is about the very best time for bass fishing in the Potomac. Black bass is essentially a summer fish. They are taken up to November on Southern waters, and in Florida all through the winter. But the close season, as defined by the law of Virginia, extends from the 15th May until 1st July. The laws of different States vary a fortnight or so from this date. To find the most killing bait in your locality you will have to experiment. Try the artificial fly of various patterns, live minnows, a troll with spoon or spinning bait. If your waters are large enough, use a sail or row boat and a spoon on two hundred feet of line, with eight-foot rod and reel, or if small ponds throw the spoon near the weeds with a stiff rod, and draw it sideways from the bow of the boat, or skitter with artificial minnow. For still-fishing use the tail of crayfish, or hellgramites, frogs, grasshoppers, beetles, worms, larvæ, and the like. Professor Williamson, of Leesburgh Academy, Virginia, has written the following interesting treatise on the habits of the bass of the Potomac.

He says: "Considerable numbers are taken near the mouths of the branches flowing into Goose Creek, in the creek itself, and in the Potomac River, with live bait and with the fly. The largest have been caught in the river; those of the creek are smaller as a rule, but not despicable in size, while those in the branches are the smallest of the three. The largest bass captured in the river weighed six pounds and over. The largest in the creek about four pounds; and one of a pound in a branch would be a "big fish." I have no doubt from observations of ova taken from bass of different sizes and at different times, that bass here spawn throughout spring and early summer, prolonging their labors according to the depth of water, etc., in their several sub-districts,

so as to give instances of spawning as early as March and as late as the 15th of June. I have examined the ova of five or six different sizes of bass ranging from six to eighteen or twenty inches, and found in November, the eggs separately discernible and equally developed in all, though the sacs were of course of various sizes. The ova mentioned above were about as large as blunt pin points, and, I think, would be ready to flow in the last part of February, certainly by the 1st March. The earliest caught last season were taken in May; the latest in the latter part of November. Anglers stop fishing here in December, but I believe bass could be taken even in that month if trial were made. The earliest taken with the fly were taken on 1st of June; the latest, by that means, in November. They can be taken with the fly from June 1st till December, whenever the water is clear enough for the fish to see the fly, and not so clear as to make apparent the angler. They retire to deeper waters as the weather gets cool, and are often taken thence with live bait, hellgramites, etc. They may be captured with the fly even in cool weather on the edges of deep pools long after they have deserted the shallows proper. Bass weighing over three pounds have been killed with the fly, and bass of over six pounds with the live minnows. To sum up, the bass spend the winter in the deepest waters—begin to ascend the streams in early spring—spawn in spring and summer, and are in their best condition in autumn. The main army have finished the labor by the middle of June. The open season ought to be, in this locality, from 15th June to 1st December until more accurate data may be gathered of their habits. Their food consists of worms, larvæ, flies, beetles, grasshoppers, crickets and small fish of all sorts. They are very voracious, fierce, and strong. In a good pool they can leap vertically several feet. They have been found above dams four or five feet high after being put in below such structures. The artificial flies most taking with these scaly citizens are the Academy and Ferguson flies, the latter red, brown and ginger hackles, and hackles brown and black together. Of the winged flies, the coachman with white wings, flies with peacock herl body, ginger hackle and yellowish white wings with red streaks and red antennæ have been most killing. Most of the "bass flies," sent from the tackle stores are entirely too large, and ordinary trout flies tied on Aberdeen and on Sproat hooks of small size are much more effective than the so-called bass flies of the stores. The commonest caterpillar here in November is black and reddish brown; hackles like it are quite taking."

For Florida waters the following has proved a most successful fly:

Hook.—Large, No.3-0, Limerick. *Tail.*—Scarlet and blue feather, a portion of each. *Body.*—Scarlet silk or mohair tipped and ribbed with gold twist, a scarlet hackle wound in at the same time, the hackle being wound close at head to form

the legs. *Wings.*—Under coverts, a portion each of bright yellow and blue feathers; over coverts the yellowish grey mottled feather from the jungle cock particularly, or a similar feather taken from the wild or tame turkey.

One native method of fishing at the south is with a bob, which is a bunch of gay colored feathers, with two or three large hooks concealed in it. This is fastened to a yard or two of strong line, and this to a stout reed pole. The fisherman sits in the bow of a canoe, which is paddled by one in the stern, and kept at such a distance from the weedy shore that the bob may be skittered along the margin. Out rushes the bass, and cannot well escape being hooked; he is either hauled in by main force, or breaks away.

The trolling spoon is also very successfully used as at the north. Indeed the methods of taking the bass are as numerous as many of them are unscientific. Angling has never been a southern pastime, the gentlemen preferring the more manly practices of the chase, leaving mere fishing to the negroes and lazy whites. Within five years, however, very considerable interest has been manifested in angling in its higher branches, and choice tackle is now in constant request from the Potomac to the Rio Grande. In Texas, where there are many clear streams, considerable fly fishing for bass is done; while in Florida, whose winter visitors are chiefly northern people, angling in all its parts and details may be said to have attained a standard of excellence not found elsewhere in North America, taking into consideration the great variety of salt and fresh water fish in request, and the vast scope offered for study and practice.

Many writers have maintained that black bass will in time destroy all other fishes which may be found in the waters into which they are introduced. We have never supported this theory. Careful observation disproves the charge. Prof. M. G. Ellzey, one of the Fish Commissioners of Virginia, says:

"I have repeatedly fished in the upper waters of the Roanoke for two years past, where bass have been plenty for many years, and find the usual varieties of catfish, suckers, sunfish, chubs, minnows, etc., existing in great abundance in the same pools in which I have been in the habit of catching the bass. I have recently observed the same thing with regard to Goose Creek, a

large tributary falling into the Potomac near Leesburg, in which I have fished ever since I was four years old, having been born upon its banks. Notwithstanding the presence of great quantities of bass, the white chub, sunfish, stone-roller, etc., have never been more abundant in that stream than now. Notwithstanding what has been said and supposed, the bass fishing on the Potomac has never been better, nor have the smaller varieties of fish appreciably diminished in that river. In almost all the streams tributary to the Ohio these fish exist, along with great abundance of other sorts, and here they have existed ever since the discovery of that country. It is, therefore, plain that as a general thing these fish are incapable of exterminating other sorts in the open waters of running streams."

Moreover, small fish do not constitute the natural food of the bass, capricious as they may be respecting their diet. They subsist chiefly upon crustaceans, (crayfish, dobsons, and the like,) devouring almost everything edible. In confined ponds where the supply of food is restricted, and where there are very few rocks, weeds, and other shelter affording protection to the small fry, the case may be different, and probably is. The bass must subsist, and when they have devoured everything eatable, they will devour themselves.

We have covered considerable ground in this volume in the study of this fish, yet the half has not been said that might be. While he continues to be the chief game fish of the south, no opportunity should be lost for investigating his habits, and enlightening those who look to his active qualities for superlative sport.

YELLOW PERCH; ring perch; red-finned perch.—*Perca flavescens.* CUV.

This well-known fish is common to rivers and ponds in all parts of the country, except in the extreme North and the Florida Peninsula. The back is more or less dusky, tinted with greenish-yellow, sides golden yellow, and belly of a paler tint. Six or eight dusky bars on the sides. The fins are of an orange color, and often of a brilliant red. Dorsal fin double. It is a spring spawner, and is in best season in July and August, when it is found near the surface, and can be taken with a fly. Flies that will kill the black bass are also suitable for the perch. Ordinarily it swims deep and is angled

for with worms, grasshoppers and other baits. Flesh white, firm, delicate, and much esteemed. It is indifferent to temperature.

Goggle-eyed Perch; Strawberry perch; chub (South Carolina); croppie (St. Louis); grass bass (Ohio); chinkapin perch (Louisiana); sac-a-lac (New Orleans Creoles.) *Pomoxys hexacanthus.*—Agassiz: *P. rhomboides.*—Linn.

This fish of many names and extended habitat has a dusky bluish-green back; sides and belly silvery, and marked with irregular oblong greenish-black blotches that resemble "chinkapins." Fins yellowish; length twelve inches, and weighs up to three pounds. Inhabits ponds and streams of running water, though it prefers the former. It ranges from Lakes Huron and Erie to the Southwestern States. It feeds on insects, and takes bait freely, and also minnow, going at it with a rush. It is a pretty fish, and much esteemed. The varieties of perch are numerous, and we can but briefly designate them. The most prominent are:

The Red-Bellied Perch; called also Red-eye and Red-Bellied Bream and Red Breast, *(Ichthelis rubicunda);* not found in any waters as far north as the Appomattox. Very common in Florida. Body dusky above; sides and belly red; appendix to opercle very long with black extremity. Takes bait freely.

Blue Bream, Bream, or Copper-nose Bream.—*Ichthelis incisor.* This belongs to the sunfish family and is found in rivers and ponds in the Southern States, from North Carolina to Louisiana. Varies in color in different waters, and is sometimes marked with dusky bars. It has a black spot on the lower edge of the dorsal fin. Grows to eight inches in length, and takes bait freely.

Maw Mouth; or Goggle-eye, of Louisiana, and the Southwest. They stay in pairs about logs, stumps, or trees, and the angler, in fishing for them, always gets both, if he takes one. They look like a hybrid, or cross between the black bass and black perch, the head about one-third their length, greatest weight about two pounds. They are very numerous, taking any kind of bait, and chasing the leaves that fall upon the water.

Silver Perch, or Speckled Perch; called also Strawberry Bass and Calico Bass. [See Northern Inland Fishes.]

Sand Perch, or Bachelor Perch; called also "Tin-mouth." Taken from Virginia to the Mississippi. Apparently a cross between the yellow belly and silver perch. It is a very broad fish,

almost as round as a plate, somewhat spotted, the spots even extending into the fins; long tinny mouth. They are found only in clear ponds in tide-water districts, in deep water and on sandy bottoms, and go in schools. They are sluggish biters, make but feeble resistance when hooked, show all the colors of the rainbow in the sun when first taken out of the water. They rarely exceed two and one-half pounds in weight; an excellent fish to eat, with white meat.

The Black Perch, sometimes called "tobacco-box"; found in ponds.

Sun Perch, or Yellow-belly, found both in ponds and rivers, and called "bream" in some localities.

The White Perch *(Morone americana)* a tide-water fish described elsewhere at length; and the White Bass.

Sun-fish, — *Roccus chrysops (Pomotis vulgaris)*. Common everywhere, and known to every school-boy from Maine to Texas. A very beautiful fish, olive brown back with a slight shade of green, marked with irregular spots of reddish-brown; sides and belly yellow with brazen spots. Fins yellow. The opercle or gill cover has a bright vermilion spot like sealing-wax on its edge. Inhabits still, clear waters, regardless of temperature, spawns in spring, fashions her nest in the sand or gravel, in shallow water near the margin of ponds, and jealously guards it from every intruder. It takes bait, and sometimes a fly or troll, though seldom. It sometimes reaches a pound in weight, and is then very good for the table. In Florida there is a variety of Pomotis known as *Centrarchus irideus*, found in company with the above, with same habits. Color greenish-yellow, darker on back.

Striped Bass.—*Roccus lineatus*. Identical with the striped bass of the coast. It is found in many tributaries of the Mississippi, and remains long in fresh water where it affords much sport to the angler.

ESOCIDÆ.

PIKE.—*Esox lucius.—E. affinis.* Holbrook.

Body dusky on top; sides reticulated with yellow and olive brown, belly white. It abounds in all ponds and rivers of fresh water, and has the habits common to its family. Holbrook claims

that it is a distinct variety from the northern pike. It grows to the length of two feet and more.

PICKEREL.—*Esox reticulatus ; E. ravenelii.* Holbrook.

Body above olive brown, often with a greenish tint; belly silvery; sides pale silver grey with dusky bars more or less oblique; fins red. In some waters its general color is quite dark. It is found in small streams of fresh water, and in canals about rice fields; seldom in larger or more rapid waters. Seldom grows to the length of a foot, and is found in small streams of fresh water, ponds, and in canals or about rice fields. It is a great nuisance everywhere, as it is an inveterate eater of spawn and small fry. This fish is everywhere confounded with the pike, which, although of the same origin, is of a far nobler race.

HYODONTIDÆ.

RIVER MOON-EYE ; mud shad.—*Hyodon tergisus.* Le Sueur.

Similar to the Western species. Body compressed, back very slightly arched. Scales large. Head small; eyes very large, nearly filling up the whole space between the angle of the jaws and the upper part of the head. Back bluish ; sides silvery ; fins tinged with yellow. Length nine inches. It seems to be little esteemed for food, being considered bony and unsavory. It is frequently confounded with the Hickory Shad.

CLUPEIDÆ.

SHAD.—*Alosa sapidissima.* Storer.—*A. præstabilis.* De Kay.

The shad season in the St. John River is from December first until about the 8th of April. They appear in that and other rivers on their way to the upper lakes and creeks to spawn. When they come in they are fat and go into all parts of the rivers, returning poor and lean in June, keeping the channels. The shad are found in the Mississippi fourteen hundred miles above its mouth, and in many of its tributaries. In the Washita River, Arkansas, they begin to appear about April 5th, and run until May 12th. In China they are known to ascend the Yang-tse-kiang more than four thousand miles.

HICKORY SHAD.—*Pomolobus mediocris.* Gill.

Hickory shad and gizzard shad are easily distinguished from the white shad, in size, flavor, and shape. The true shad's mouth shuts together evenly and is white. They are thicker and broader, have a dark streak on each side of the backbone after cutting open, and have a different flavor from any other fish; while the hickory shad's under lip is larger than the upper. It is black and extremely bony, and insipid in flavor. The hickory shad makes its appearance in the St. John River the first or second week in November. The fishing is best about the first of January. The season ends about the middle of April. The shad are found in great abundance in the lakes of Central Florida, where the fishermen believe that most of them deposit their ova.

HERRING; glut herring; branch herring.—*Pomolobus pseudoharengus.* Gill.

Color of back steel-bluish or greenish; head above and tip of lower jaw of same color; sides and belly silvery, the former with from four to six dusky lines. Length eight to ten inches. This is called the "glut herring" of the Potomac River, so called from the vast schools which crowd that river during the spawning season in May. It deposits its eggs on the bottom of the river, seeking localities where the water is fresh, and apparently preferring the hard beds where the *myriophyllum* grows, and no doubt the water is well aerated. Some of these fish deposit their eggs in the small streams in the same region, and thence take the name of "branch herring."

CYPRINIDÆ.

THE COMMON CARP.; called also whitefish, roundfish, and large-scaled sucker.—*Cyprinus carpio.* Linn.

Carp are very abundant throughout the Southern States, where there are several varieties propagated from stock originally imported from Southern Europe. In Virginia they are highly esteemed for food, and during their run in midwinter constitute for many persons their entire supply of fresh fish. An intelligent observer in that State speaks of their being very abundant in the Mattaponi and Pamunky Rivers. They come up the rivers early in January, generally after the first spell of very cold weather.

They do not ascend to the extreme headwaters to spawn, but leave the deeper parts of the stream whenever the humor takes them, and deposit their spawn along the edges. After spawning, most of them return toward salt water. Some are found during the summer. They thrive freely in ponds, and are thought to be not destructive to the spawn of other fish. They vary in length from one to two feet, and weigh from one-half a pound to five pounds. Shape long and flattened; fins arranged something like the fresh water mullets; heads and mouths almost precisely like the mullet's, the mouth being a sucker and extremely small. They run very near the bottom, and only take food lying on the bottom. They bite at hooks baited with crumbs of bread or red worms, in taking which they assume a perpendicular position, standing on their heads, as it were. They are vegetable feeders.

Carp are said to have been first observed in Virginia from fifty-five to sixty years ago, though it is hardly probable that their introduction antedates the year 1832, when a lot were brought over from France by the captain of a Havre packet. The Virginia carp are said never to go below brackish water. A gentleman in Woodville, Mississippi, who is engaged in the artificial propagation of carp, says that the eggs hatch in twenty-four hours after being deposited, they being always attached to brush or sticks floating in the pond.

RED HORSE; Pittsburgh sucker.—*Moxostoma duquesnii*. Jordan.

A large-scaled, red-finned sucker, with dusky olive back, coppery sides, and whitish abdomen, attaining a weight of six pounds and a length of twenty inches.

JACK MULLET; black sucker.—*Catostomus maculosus*. Le Sueur.

A reddish fish marked with irregular black blotches; fins reddish, dashed with black; dorsal bluish. This beautiful sucker lives in stony and rocky creeks, in places where the current ripples. Specimens may be seen resting motionless on flat rocks at the bottom, and darting away like a flash at the approach of man. The larger ones take shelter beneath rocks, with cavities underneath, where they remain except when tempted away by want of food.

COMMON MUD SUCKER.—*C. teres.* Le Sueur.

Dark green head, nearly black; cheeks bronze and golden, body purplish above, with pink and metallic tints on the sides, and white beneath. Not a good fish to eat, flavor rank. Length sixteen inches.

BLACK MUD SUCKER.—*C. nigricans.* Le Sueur.

Head large and square, black above; reddish yellow on the sides, with black blotches; white beneath. Dorsal fin black; the others reddish. Length ten to thirteen inches.

LONG-FINNED CHUCK SUCKER. *Carpiodes cyprinus.* Agassiz.

Scales variegated with blue, yellow and green; all the fins are grey-blue. Length twenty inches. A good edible fish.

HORNED SUCKER.—*Erimyzon oblongus.* Jordan.

A small fish reaching nine or ten inches in length. Head dark olive green; back and sides of body green; sides tinged with yellow; anal fin blackish brown, caudal lighter, and the remaining fins light olive green. Sometimes called Mullet.

GOLDFISH; GOLDEN CARP.—*Carassius auratus.* Bleeker.

A well known species much fancied for globes and aquaria, often growing to the length of a foot. Body generally brilliant red or orange above and silvery beneath, although they are found grey, silvery, golden, mottled with black, olive, or almost black even. Their colors vary as much as those of litters of cats or dogs.

CHUB SUCKER.—*Exoglossum maxillingua.* Haldeman.

Color olivaceous; smoky above; a blackish band from pectoral to superior extremity of gill opening. Length eight inches. Lives in the rocky parts of running streams, and feeds on *physalis* and other small fish.

GASPER-GOU; Buffalo.

Weight from one to eight pounds; has the general conformation of the perch family, with the exception of its mouth, which is formed like a sucker's. Its color is a bright silvery white, with a

sheen of purple. It is a fair table fish, but spoils very soon after it is killed. Found in Louisiana and Mississippi.

Fall Fish; shiner; shining dace. *Semotilus rhotheus. Leuciscus nitidus.* De Kay.

Colors very brilliant, having as ground a very pure silvery white; back is often steel blue, and sides of head bright rose color. In spring and summer the adult males have rosy shades, and the dorsal and pectoral fins are crimson. Length twelve inches. Specimens have been caught weighing five pounds. Much esteemed as food, and affords good sport for the angler.

Another variety is the Little Fall Fish, or Corporaalen, *S. corporalis*, similar in shape to the above, but distinguished by its narrower scales, and by a dark spot at the base of the dorsal fin, and darker colors above, cream colored below. Length twelve inches.

Stony Head.—*Ceratichthys biguttatus.* Kirt.

A brownish cream colored dun, shaded with slate above the lateral line, where the scales are tipped and margined with the same. Length six inches. Much esteemed as food.

The Report of the Maryland Fish Commissioners for 1876, to which we are indebted for descriptions of several varieties of the families Cyprinidæ and Percidæ, describes no less than twenty-five varieties of Cyprinidæ found in the State of Maryland alone, but they are generally small, and not in request by anglers.

SALMONIDÆ.

Mountain Trout.—Common Speckled Trout or Brook Trout.—*Salmo fontinalis.* Mitch.

The only localities in the Southern States in which this fish is caught are the headwaters of streams that have their sources in the Apalachian Mountain ranges, these constituting the tributaries or feeders of rivers in Virginia, Maryland, North Carolina, South Carolina, Georgia, and Alabama. Nearly all of them contain trout. [See Northern Inland Fishes.]

ACIPENSERIDÆ.

Sharp-nosed Sturgeon; Jack Sturgeon.—*Acipenser oxyrhynchus.* Mitch.

Elongated, pentagonal body; entire surface granulated, excepting that occupied by five longitudinal rows of flattened plates.

of the same structure as the covering of the head, but of a lighter color. The largest plates form the dorsal ridge. Head flattened; eyes small; lips fleshy, bilobed mouth on under side of head; between the snout and mouth are four barbels. Color, greyish-brown above, silvery upon the inferior body of sides. Upper lobe of caudal fin twice as long as the lower. Length two to eight feet. Inhabits the James, Potomac, Rappahannock and Susquehanna Rivers. Much esteemed as food in Virginia.

SHORT-NOSED STURGEON.—*A brevirostris.* Le Sueur.

Head broad and convex; short snout; four flat barbels under the snout. Dorsal series of tubercles nine to twelve; lateral series twenty-three to twenty-nine; abdominal series five to seven. Tail covered with lozenge-shaped plates. Dusky above, with faint traces of oblique bands: whitish beneath. Length two to five feet. Inhabits Potomac River.

SILURIDÆ.

The family of Catfish is represented by the Channel Cat or Blue Cat, the Yellow Cat, the White Cat, and the Mud Cat, all described elsewhere, and the Shovel-billed Cat of Louisiana and Mississippi. All the cats are much angled for by the negroes, and eagerly eaten by the poorer classes, but the Channel Cat is really an estimable food fish, and affords good sport for the angler.

The salt water catfish, *Ariopsis milberti*, of Gill's catalogue, carries its peculiar eggs and its young in its gills. The Halifax River in Florida, swarms with this species in warm weather, so that they become a nuisance, taking the bait intended for better fish. They grow to the weight of ten pounds or more, and fight vigorously when hooked, but they are seldom eaten, and are covered with a disgusting slime, which makes the handling of them very unpleasant; besides which the long bony rays of the pectorals are armed with a serrated bone, exactly like that of the stingray's tail, which inflicts very painful wounds.

The eggs are as large as marbles, and occur in bunches resembling grapes in form and color. We have never been in Florida at the season when these catfish carry their young in the

throat and gills, but are assured by the fishermen of that coast that such is their habit.

MUGILIDÆ.

Of the mullet family there are many varieties, of which little need be said, as they afford no sport to the angler. In the James River, Virginia, there is a very edible and toothsome mullet, much valued for the table. The common mullet of the inland muddy rivers is a loathsome fish scarcely filling the wants of the impoverished negroes and white trash. The "stone toter," or "stone roller," is a far better variety, which is found in clear running streams with pebbly bottoms. Mullets are much utilized for baits for other fish.

FISHES OF THE SOUTHWEST

SALMONIDÆ.

Rio Grande Trout.—*Salmo spilurus.* Cope.

Specific characters. Head small, entering length of body four times; muzzle acute; diameter of eye enters length of side of head five times; scales large, cranium not keeled above; dorsal fin nearer muzzle than end of caudal scales; caudal scarcely emarginate. Br. ix, ix. *Color*, lighter than *S. pleuriticus* which it resembles; yellowish-brown above, with small spots composed of decussating lines. A red band on each side of the chin.

Habitat, Head-waters of Rio Grande, New Mexico; Sangre de Christo Pass, Colorado; and Brazos and Chama Rivers, New Mexico. This species may eventually prove on further examination to be a well-marked variety of *S. pleuriticus*, this latter being found in the same streams with it.

As a game and food fish it cannot be surpassed; biting readily at either fly, grasshopper, grub, minnow or worm, it affords excellent sport. The Indians of New Mexico capture them in baskets of wicker-work, nets, and by a running noose of horse hair at the end of a stick. The noose opened wide is gently passed beneath the belly of the fish and gradually tightened; a sudden jerk captures the fish. By this method fish no longer than one's finger are taken by Indian boys.

CYPRINIDÆ.

Robust Chub.—*Gila robusta.* Baird and Girard.

Specific characters.—Body sub-fusiform, anteriorly stout, posteriorly tapering. Head one-fourth total length. Eye small, entering length of side of head eight times. Anterior margin of dorsal fin nearer extremity of caudal than end of snout. On the end of the snout is a small knot or tubercle. *Color*, greyish brown above; yellowish beneath. *Habitat*, Rivers of Arizona and New Mexico.

Will bite at anything, grasshoppers, grubs, flies, artificial and natural, pork, fishes' fins or eye. Are quite gamy.

ELEGANT CHUB.—*Gila elegans.* Baird and Girard.

Specific characters.—Body slenderer than preceding, tail attenuated; head one-fifth total length, eye small, entering length of head seven times. Margin of dorsal fin nearer snout than base of caudal; scales larger than in *G. robusta*. *Color*, reddish-brown above; metallic yellow or white beneath; fins dull olive. *Habitat*, New Mexico, Arizona, California, Fort Bridger, Green River, Wyoming. Remarks as to capture of the preceding species will apply to this, in fact to all of this genus.

CHUB.—*Gila gracilis.* Baird and Girard.

This species is intermediate between *G. robusta* and *G. elegans* but the scales are smaller than in either. *Color*, same as preceding. *Habitat*, Arizona, Green River, Wyoming. Is exceedingly abundant, especially in the White River, Arizona, frequenting the deep pools; will bite at anything. The fish is firm and sweet, but full of bones. Where this species resorts few, if any, other fish will be found except its congeners.

GRAHAM'S CHUB.—*Gila grahami.* Baird and Girard.

Specific characters: Body sub-fusiform, compressed; head enters four and one half in total length. Margin of dorsal fin nearer insertion of caudal than snout. Caudal deeply forked. *Color*. Similar to preceding. *Habitat*. Fort Bridger, Wyoming, New Mexico, Arizona.

Is abundant, especially in Arizona; takes any bait.

PESCADITO.—*Gila pandora.* Cope.

Specific characters: Head one-fifth total length; eye enters length of side of head six times; dorsal fin nearer base of caudal than end of muzzle. *Color*. Silvery above. *Habitat*. San Juan River, Colorado, Rio Grande, and affluents, New Mexico.

This species is the most abundant in New Mexico, and is readily taken with any bait.

GILA CHUB.—*Gila gula.* Cope.

This chub resembles the preceding, but has larger head which

enters length exclusive of caudal fin three and one half times. First ray of dorsal midway between base of caudal and posterior rim of orbit. *Color*, dusky olive above ; silvery white beneath, axils of fins crimson. *Habitat*, New Mexico. A beautiful specimen and easily taken.

BLACK CHUB.—*Gila nigra*. COPE.

Specific characters.—Body fusiform; head enters length minus caudal three and one half times. Scales more numerous than in *G. pandora* ; upper lip slightly overhanging lower. *Color*, black above, olive beneath. *Habitat*, rivers and creeks of Arizona. Will take any bait.

BAIRD'S CHUB.—*Gila emorii*. Baird and Girard.

Specific characters. Body elongated and compressed; head enters total length five times, greatly resembles *G. grahami*. *Color*, greyish silver. *Habitat*, Gila River, Arizona. Will take any bait.

There are a number of other species of this fish commonly called chub, or *pescadito* in the southwest, such as *Ceratichthys physignathus* of the Arkansas River, Colorado; *C. sterletus* of the Rio Grande River, New Mexico; *C. squamilentus* of Green River, Wyoming; and *Gila seminuda*, of which little is known. Those indicated afford tolerable sport, and answer well for the table when better cannot be had.

SUCKERS.

Of suckers there are several varieties, including *Pantosteus platyrhynchus* (Cope); *P. jarrovii* (Cope); *Catostomus fecundus* (Cope and Yarrow); and *C. guzmaniensis* (Girard).

There is also a species of "Red horse," *Ptychostomus congestus* (Girard), met with in the streams of Arizona and Texas.

SILURIDÆ AND ANGUILLIDÆ.

In the Rio Grande are taken many varieties of catfish, the best of which is known as the *Amiurus nebulosus* (Le Sueur). It will take any kind of bait. Of eels, of which there are also many varieties, the best is the *Anguilla tyrannus*, which is very much like the ordinary eel.

SOUTHERN COAST FISHES.

SOLEIDÆ.

American Sole ; calico ; hog choker ; coverlip ; spotted sole.—*Achirus lineatus.* (Linn.) Cuvier.

Head, body and fins greenish brown, with numerous black blotches. There are two patterns of markings on this fish, one with zigzag bands, and the other spotted. Very abundant in the lower Potomac and its tributaries.

PLEURONECTIDÆ.

Flounder ; flatfish ; sole.

Many varieties of flounders are found in Northern waters which are not known south of Cape Hatteras, and *vice versa*. The most common Southern varieties, found from New Jersey to Hatteras, are the *Lophopsetta maculata*, called spotted turbot, window-pane, and sand flounder ; length, twelve to eighteen inches. *Citharichthys microstomus ;* the *Pomatopsetta dentata*, or summer flounder ; and *Chænopsetta ocellaris*, or common flounder, length twelve to eighteen inches. From Hatteras to Florida there are *Chænopsetta dentata*, or southern flounder, and *C. oblonga*, or four-spotted flounder, which grows to two feet in length. All take bait at the bottom, and are excellent food fish. Color greenish brown, brown, and olive brown.

LABRIDÆ.

Black Fish ; tautog.—*Tautoga onitis.*—Günther.

Color deep black, or bluish black. Length six to eighteen inches. Feeds on mud crabs or fiddlers and shell fish. Found in Chesapeake Bay.

EPHIPPIIDÆ.

ANGEL FISH.—*Ephippus gigas.* Gill.

The form of this fish is sub-round, the dorsal outline much arched. The back is dark, tinged with green; sides and belly of clouded silver; length eighteen inches. Is taken with hook in deep water in July. It feeds on small marine animals and fish. Another variety *(E. faber)*, has a body of lightest silver grey, marked with six transverse bars. It is found on the coast in May and June. Length nine inches. Esteemed as food. A good food fish.

SCOMBRIDÆ.

COMMON MACKEREL.—*Scomber scombrus.* Linn.

Found as far south as Cape Hatteras.

CHUB MACKEREL.—*S. colias.* Linn.

Light green on back with numerous undulating green lines passing down the sides, just crossing the lateral line; dull bluish beneath, with large round or oval blotches distributed irregularly on the sides. Length one to two feet. Ranges as far south as Hatteras.

BONITO; skipjack.—*Sarda pelamys.* Cuvier.

Range extends to Florida.

SPANISH MACKEREL.—*Cybium maculatum.* Cuvier.

Body sub-cylindrical elongated; silvery above, clouded with bluish green; sides and belly white with purple tints; several bright copper colored spots about a half inch in diameter, both above and below the lateral line. Teeth long and sharp. Tail bi-lobed—each lobe long, slender, and pointed; fins yellowish. It appears on the coast of the Carolinas in April and May, but is rarely seen in the summer months. It feeds on a variety of small fish and runs in schools. Taken often with a trolling line and a bluefish rig, though it is a very capricious fish, and will frequently take no notice of the lure, although there may be thousands of fish in sight.

CERO ; black spotted Spanish mackerel ; kingfish.—*Cybium regale.* Cuvier.

Range extends to Florida.

ALBICORE ; American tunny ; horse mackerel.—*Orcynus secundi-dorsalis.* Gill.

Range extends to Florida.

[See descriptions of all the above in Eastern Coast Fishes.]

JACKFISH.—*Seriola carolinensis.* Holbrook.

Head olive brown, body bluish slate color ; sides yellow ; belly white ; a yellow band from the opercle to the tail, which is widely forked ; fins bluish yellow. Length two feet four inches. Lives in deep water and is taken with bait and line at all seasons of the year, but is never abundant.

BANDED MACKEREL.—*Seriola zonata.* Holbrook.

Body pale bluish slate color, marked by vertical dusky bands. A yellow horizontal band extends from the opercle to the tail, and a second band of same color, less distinct, is often found below it ; fins yellowish ; tail deeply forked. It ranges from Massachusetts to Florida.

GREEN MACKEREL.—*Seriola chloris.* Holbrook.

Upper half of body palest green ; lower half silvery, iridescent, with purple reflections, fins yellow ; tail widely forked with a black spot at the base. Seen along the coast during July and August ; feeds on small fish.

CARANGIDÆ.

CAVALLI or CREVALLE.—*Trachynotus carolinus.* Gill.

This fish very much resembles the pompano, belongs to the same family, and is often confounded with it, even by naturalists, but its habits are very different. The cavalli has a more pointed head and snout, with moderately large conical and pointed teeth. The mouth is larger than in the pompano, the body not as deep in proportion to the length, the eye is larger, it has two dorsal fins, and at the junction of the tail with the body it is smaller than the pompano. The principal structural differences are these : In

the pompano the first dorsal is represented by six spines, the snout is truncated, the mouth rather small and toothless. The cavalli has two dorsal fins, a sharper snout and a larger mouth, with conical pointed teeth. In color, both are changeable, the prevailing colors of the pompano being blue and silver, those of the cavalli green and gold. Both are very brilliant fishes. In color it is olive green, and silvery above and yellow beneath. It goes in schools, swims near the surface, and takes readily a troll, either bait or red rag or fly. It is an active sporting fish, but of indifferent quality on the table, being dry and tasteless. It is found far up rivers (where the water remains brackish). It grows in Florida to the weight of ten or twelve pounds. Spawns in May, in the ocean, and is taken in South Carolina waters until October; in Florida all through the winter. It feeds on mollusks, and crustaceous animals.

PAMPANO.—*Botholæmus pampaaus.*

The pampano has a truncated snout, rather a small mouth without teeth, jaws strong and massive, eye of moderate size, body much compressed and deep, about one-third the length: first dorsal fin represented by six spines; second dorsal soft, and extending to the tail; anal fin extending to the tail also. The pampano is a bottom fish, and is found singly. Rarely takes the hook, but when he does fights vigorously, running in circles, darting in all directions, and making a great fuss generally. His colors when first out of the water, are as brilliant as those of a fresh salmon,—like a bar of frosted silver. After death they change to dark blue above and lemon beneath. Most delicious for the table. Spawns in March. Its range extends to Massachusetts. Holbrook mentions four species of Caranx.

BERYCIDÆ.

SQUIRREL FISH.—*Diplectrum fasciculare.* Holbrook.

Body fawn color or bronze, marked with seven or eight lines of ultramarine blue; fins blue and yellow. Length fourteen inches. Is occasionally taken on the hook, on blackfish grounds. The Carolinas are its extreme northern limit.

SCIAENIDÆ.

Redfish, or Channel Bass.—*Sciænops ocellatus.* Gill.

This is a very common and numerous species on the Florida coasts, and is a fish much resembling in habits its congener, the striped bass of more northern waters. It is taken with similar baits, such as shrimp, crab, or a piece of mullet; it fights long and hard on the hook, and in the proper season is an excellent table fish, boiled, cut in steaks, and broiled, or even fried. In the fall and winter the redfish is lean and without flavor, but improves in March, and in January it is the best of the coast fishes, as well as the most abundant. At that season it swarms in the river mouths and sounds, and can be taken with almost any bait. It is also found of large size in the surf on the sea-beaches, and can be readily taken by casting a baited hook with a hand line from the shore.

Specimens under seven or eight pounds weight have the back of a steel blue, sides golden, and belly white—the larger fish are of a brilliant golden red on back and sides. All have the black spot near the tail, from which the specific name is derived. Sometimes there are two or more spots.

It comes into the rivers with the tide, and is best taken in the channels near the shore at half flood. As in sheepshead fishing, most persons use the hand line, with the bait on the bottom, but better sport can be had with a bass rod and reel to hold sixty or seventy yards of line, using a float to keep the bait within three feet of the bottom. The same hook as for striped bass; this fish has a tough but not very bony mouth, and is easily hooked. It is also taken frequently with a fly and trolling spoon. In March and April in the rivers and inlets they run from five to ten pounds weight; later in the season of larger size, say from fifteen to thirty pounds.

It makes its appearance in Carolina waters in November. It spawns in August and September in the shallow bays and inlets. In November and December the largest fish are caught. Its range extends to New York.

Trout; Salt water trout, or grey trout.—*Cynoscion regalis.* Gill.

This fish is known as the weakfish and by other names on the northern coast. Ground color of body silvery. Black above the

lateral line, marked with numerous irregular dusky blotches. Length twelve inches. Taken with rod and reel, with mullet bait, fly or troll, in Florida and other southern States chiefly with bait. Its range extends to Massachusetts. It belongs to the same genus as the *C. carolinensis* (called salmon trout, spotted sea trout, and spotted silver sides), but differs considerably in color and markings. Both fish are caught together with the same bait. It lives always in salt water, never ascending fresh streams, and feeds on smaller fish and shrimp. Shrimp is an excellent bait. It is most abundant and of the largest size in the autumn months. Spawns in July and August in rivers at tide water. Holbrook mentions two other varieties known in South Carolina waters, one, *C. thalassmus*, body dusky, with a greenish tint above. Sides and belly yellow. Known as the deep sea trout—found only in the ocean at a depth of twenty fathoms and never approaching land; the other *C. nothus*, or Bastard Trout. Head and body silvery white or but slightly shaded above; length twelve inches; an uncommon variety. [See Weakfish in Northern Coast Fishes.]

KINGFISH; whiting.—*Menticirrus nebulosus.* Gill.

Body silvery, marked by several oblique dusky bars. Length sixteen inches. The whiting remains all the year round. It spawns in May in the ocean. In spring and summer very abundant, and are taken near the bottom in the mouths of rivers and bays with hook baited with shrimp, clam, crab, or mullet. They prefer deep and running waters, and afford excellent sport to the angler. This fish is peculiar to southern waters, and is a different fish from the northern variety. [See Eastern Coast Fishes.]

DRUM.—*Pogonias chromis.* Lacep.

The drumfish is very common all along the Atlantic coast, from New Jersey to Florida, and is much esteemed. In the spawning season in March and April, it is taken very abundantly with prawns for bait, which appear at that period. Body is of a dull silvery or lead color, often with a coppery tint. It lives on molluscous and crustaceous animals, which it crushes easily with its immense round teeth. In the spawning season it enters the bays and salt water inlets, and is constantly heard drumming. This

noise is made in the air bladder, and can be heard at long distances, sounding like the tap of a drum. It emits this sound only in spawning season. Spawns in the bays and inlets.

LAFAYETTE; spot; pigfish; bezuga; chub; croaker; goody.—*Liostomus obliquus.* De Kay.

This is a yellowish fish, marked by fourteen dusky bars descending obliquely forward from the back, and always recognized by a dark spot behind the gill-cover. Fins yellowish. Its range extends from Florida to Rhode Island. It is taken with hook and bait from April until December. It is highly esteemed. Spawns in November and December in the bays and inlets.

YELLOW TAIL.—*Liostomus xanthurus.* Lacep.

Habitat and habits same as the Lafayette, and taken with the same bait. Color golden brown above; silvery below; tail yellow.

BLACK PERCH.—*Lobotes surinamensis.* Cuvier.

General appearance olive black; yellowish fins. Is taken with hook baited with clams or shrimp from June to September. Range from New York to Florida.

YOUNG DRUM.—*Pogonias fasciatus.* Lacep.

This variety of the drum has a silvery body with dusky vertical bars, and measures two and a half feet in length. It is taken with the hook at nearly all seasons of the year, but the largest are taken in November and December. Its range extends from Florida to Rhode Island.

SURF-WHITING; shore whiting; barb.—*Menticirrus littoralis.* Gill.

Scientists note specific differences between this fish and the alburnus, although their general features are very similar. This species is only found in shoal water where the bottom is hard or sandy. Its favorite resort is the surf along shore where it finds abundant food rolled in from the ocean. It is seldom taken with hook. Makes its appearance in April, and remains all summer.

CROKER.—*Micropogon undulatus.* Cuv. and Val.

A good panfish, seldom exceeding a foot in length, and taken in great numbers in the bays and estuaries. It winters in Florida

and makes its appearance on the Carolina coast in May, but it only becomes common in shallow water in June and July, and is most abundant and of largest size in October and November. It is of a dusky silvery color above; belly white; fins yellowish.

BULLHEAD.—*Larimus fasciatus.* Holbrook.

This fish resembles the Lafayette fish at first sight. The body is of a pale silver grey, the sides marked with seven vertical dusky bars; fins yellowish. Though a rare fish, it is sometimes found in company with the weakfish, or sea trout, and is caught with the same bait. From Hatteras to South Carolina.

SPARIDÆ.

SHEEPSHEAD.—*Archosargus probatocephalus.* Gill.

This fish is of a semi-oval form, head large, body a silver grey color, marked by seven transverse bluish-black bars. The old fish become more dusky. They weigh as high as seventeen pounds (that weight taken at Homosassa, Florida) and are found in all Florida waters, and as far north as Massachusetts. It is taken in Florida throughout the winter. The best fishing is usually in the channels which run along the banks, upon which is a thick grove of mangrove bushes; the roots of these are in the water, and are covered with barnacles, which attract the sheepshead. From half-flood to high water they usually bite most eagerly, though here, as elsewhere, there sometimes comes a day on which fish do not feed —affected probably by the wind or weather.

In April they become heavy with spawn, and lose their fine flavor. They spawn in May. They are often taken quite small, only a few ounces in weight. Most fishermen use a hand line, with two hooks resting on the bottom, but anglers find more sport in the use of rod and reel. A four pound sheepshead will make a strong fight, and a pair of them will try the angler's skill to save both. Owing to the hard pavement of enamelled teeth in the mouth, it is difficult to hook this fish, and when hooked his jaws are so strong that few hooks can resist their power. The best hooks are those known as the Virginia and Chestertown hooks. The barb has a sharp cutting edge, which penetrates better. The baits generally

used are clams (better boiled, being tougher), crabs, fiddlers, and conchs. The latter bait is very tough, well resists the strong teeth of the sheepshead. Sinkers of different weights are required to suit the force of the tide at different times, the sheepshead being a bottom fish. Two, four, and six ounces will be found sufficient.

The sheepshead appears in the neighborhood of Charleston in April, and continues until November. It enters shallow inlets and mouths of rivers, which it ascends so far as the water remains brackish. It prefers rocky bottoms or sheltered places; old wrecks are favorite resorts, because they collect barnacles and other shells. They can be easily tolled to a place by sinking old logs or timbers on which barnacles will collect. If these are removed, the fish at once disappear.

PORGY; fairmaid.—*Stenotomus argyrops.* Gill.

A well-known fish, of an iridescent silvery color, tinged with blue, purple and green, and takes the hook freely baited with clams or other shell fish. Ranges from Florida to Cape Cod. Most abundant in June and July. Prefers deep waters with rocky bottoms, but is often found in waters of an altogether different character.

RHOMBOIDAL PORGY; bream.—*Lagodon rhomboides.* Holbrook.

Nearly oval in shape. Head above pale brown with small golden spots; sides of head marked with several alternate pale blue and golden lines; the body above the lateral line marked with similar lines of the same color, but more clouded; slightly arched and concentric. Below the lateral line these are horizontal and parallel to the belly, where the blue lines disappear, and are replaced with alternate white and golden lines; belly white; a dusky spot above the root of the pectoral fin. Length ten inches. Feeds on crustaceous animals and smaller fish. It is abundant in May and June. Takes bait freely. Flesh palatable.

PRISTIPOMATIDÆ.

RED MOUTH GRUNT.—*Hæmulon chrysopteron.* Cuvier.

Back arched, pale umber grey; belly silvery; fins yellowish; length twelve inches; taken in Carolina waters at all seasons of

the year, though never abundant; not esteemed as food. Spawns in April, in bays and inlets.

BLACK GRUNT.—*Hæmulon arcuatum.* Cuv. and Val.

Body umber brown above, paler on the sides; head dusky, marked with horizontal lines of ultramarine blue; length ten inches. Lives in deepest waters, and feeds on shell fish and smaller fish. Spawns in April.

HOGFISH; speckled red mouth; sailor's choice.—*Orthopristis fulvomaculatus.* Gill.

One of the best Southern food fishes, and is angled for from boats by still baiting with shedder or soft-shell crab. It is excellent when boiled or stuffed and baked. It should be skinned with a sharp knife, as its scales are very tenacious. Body above pale brown, belly silvery; sides marked with numerous orange-colored spots—those above the lateral line in oblique rows, those below it in horizontal rows; fins yellowish marked in same way; sides of the head pale blue, with yellow spots. This fish appears in April, and continues until November. It is very common in Bermuda and is caught as far north as Chesapeake Bay. There are four other varieties of Grunts: the *Hæmulon formosum;* the *H. quadrilineatum,* or striped grunt; *Anisotremus virginicus;* and *Lutjanus canis,* the yelting, or glass-eyed snapper.

SERRANIDÆ.

BLACK FISH, or SEA BASS, Black will.—*Centropristes atrarius.* Barn. (Eastern shore of Virginia.)

The males of this fish are bluish-black on the upper part of the body, and lighter below; females a dingy brown. Their fins are very large. They grow to several pounds in weight. Takes bait voraciously. It abounds in shallow as well as deep waters. Taken from the wharves by rod and hand line, with clams, crabs, shrimp, etc. [See "Sea Bass," in Northern Coast Fishes.]

BLACK GROUPER.—*Epinephelus nigritus.* Gill.

Commonly known on the Florida coast as the "grouper;" it is a perch also, and is of the very best quality on the table, being

rich and well flavored. It is shaped something like the black bass of fresh water, the color an olive brown, with dark mottled lines, resembling tortoise shell. At Mosquito Inlet it is taken from two to eight pounds in weight with mullet bait on the bottom. The grouper has a stronghold under the mangrove bushes, or in a hole in the bank, to which it retreats when hooked, and being a vigorous fish often succeeds in reaching its fortress, from which it can with difficulty be dislodged, and the loss of fish and tackle is the result. More hooks are lost by the grouper than by any other fish, but as it affords good sport and excellent food, it is a favorite object of the angler's pursuit. A bass rod and reel, with a strong line and Virginia hook, with lead enough to keep the bait on the bottom, is the best rig for the grouper, and, after all, the prospect of getting him is uncertain. He fights so hard that you have to give him line, and if you give him too much he is sure to escape into his hold. Spawns in May and June in bays and inlets.

RED SNAPPER; red grouper.—*Serranus erythogaster.*—Cuvier. *Epinephelus morio.* Gill.

This fish seems to be called by both names in different localities. In east Florida it goes by the name of "snapper," and is known by the large canine teeth and by its rapacious habits; when put with other fish alive in a car it proceeds to devour those smaller than itself. It has large scales, with spines in the dorsal fin, and has been placed by Cuvier among the perches. At Mosquito Inlet they are small—from one to three pounds, but in the Indian River ten or twelve pounds weight, and in the Gulf of double that size. The snapper seems to be a wary fish, and requires finer tackle and more careful fishing than most of the coast species. *A rather small hook, fine line,* with mullet bait cast from a reel, using a float so as to let the line run off down the current thirty or forty yards from the boat, is the most successful way to delude the snapper. It bites sharply, fights hard, and is good eating, either boiled or fried. Color, reddish brown on back and sides, growing darker after death; belly silvery. Spawns in May and June in bays and inlets. Twelve varieties of Groupers are enumerated.

LABRACIDÆ.

STRIPED BASS, or ROCKFISH.—*Roccus lineatus.* Gill.

Body above dusky ; sides and belly silvery white ; sides marked with seven or eight longitudinal lines of a bluish color. Grow to a large size, but not so large as those taken off the coast of Massachusetts. Taken in both salt and fresh water, although it is really a marine species. Its habits in southern waters differ somewhat from its habits in northern waters. It is seldom taken in salt water, but is constantly seen in rivers of fresh water at great distances from the ocean, even as far up the Mississippi as St. Louis. It is common in White River, Arkansas, and in the rivers of all the Southern States. It feeds on various small fish, and on crustaceous animals, and never destroys its own kind, like the bluefish. Taken with rod and reel. [See Striped Bass in Northern Coast Fishes.]

WHITE PERCH.—*Morone americana.* Gill.

Back and sides pale silver grey ; belly silver white ; two dorsal fins ; length twelve inches, rarely exceeding two and one-half pounds in weight. Found in both salt and fresh water from Massachusetts to South Carolina. It is really a marine species. Takes minnow, the soft or "peeler" crayfish, soft or hard crab, or pieces of perch. In early spring there is excellent fishing at the Little Falls of the Potomac. The perch, with the herring and shad, ascend the river to spawn, and remain in this locality two or three weeks before returning to salt water. During the season it is a very common thing to take them weighing from three-quarters of a pound to a pound and a quarter each, and measuring from six to twelve inches in length, and when of this size they make a delightful pan fish. But before speaking of the habits of the perch, a brief description of their favorite haunts will not be out of place. Their spawning grounds extend all the way from Ead's Mill to the foot of the Little Falls, a distance of about a mile. The river between these points varies in width from seventy-five to one hundred and fifty yards, and in depth from four to fifty feet. The bottom is rocky, and at low tide numerous rocks are visible above the surface of the water. The shores on both sides are almost a

solid mass of rock, and many fine perch are taken at high tide from the eddies formed by the rapid current behind some of the larger rocks.

Many persons, in fishing for perch, do so from the rocks along the river bank instead of from a boat. At high tide they often have good sport, but never take as many large fish as the more experienced fishermen, who have their boats anchored over the deep holes, and above eddies, where they take out the larger ones, oftentimes as fast as they can bait their hooks. On many occasions two or three of us have captured over two hundred perch in less than three hours by fishing from a boat.

The tackle used for catching perch is very light, a fourteen foot rod, braided linen line, and reel; the latter is a matter of convenience. The perch is not a game fish, and therefore the reel is not necessary to give him line, as in fishing for rock bass, and other game fish. Perch bite rapidly and swallow the hook, but offer no resistance, and are easily taken from the water. Two or three small hooks (Limerick, Aberdeen, or Kirby) are attached to the line above the sinker, and the best fish are caught near the bottom.

After spawning the perch start down the river early in May. They breed and spend the early summer months in the fresh tributaries, but by the first of August drop down to water slightly brackish where they remain in large schools until October. In August it seems that the bottom is covered for acres with them. The cream of the perch season is from the 1st of September until the middle of October, and the best time to select is those days when it is high water from six to nine o'clock. Then you can get the benefit of both tides in one day. In the tributaries of Chesapeake Bay, the best fishing is enjoyed. There are known resorts of the fish, and an hour or two before high or low water, until the same time after the turn of the tide, is the time for taking them. As soon as the boat is anchored the rod is extended from sides or stern; the sinker with the baits runs the line from the reel and finds the bottom. There is a pull downward by the perch, a pull upward by the angler, and the tip of the rod is lowered; then another pull, and another perch hooked, and then a third in the same manner, when the angler reels up and lifts his fish on board.

On a good day it is not uncommon for three or four fishers to kill from fifty to eighty dozen.

POMATOMIDÆ.

BLUEFISH or SKIP-JACK; greenfish (Virginia); tailor (Maryland and Virginia).—*Pomatomus saltatrix*. Gill.

The form of this fish is oblong, head rather large, snout rounded, mouth large, armed with bony sharp teeth; tail deeply forked, color brilliant steel blue and silver in young fish, and deep greenish blue in old fish; fins yellowish. These fish are generally small and not esteemed. Taken by trolling and by rod, bait and float from the wharves. Shrimp are preferred for bait. At some seasons they will take a light colored fly of whitish yellow hue, and are often so caught on the Gulf coast of Florida. The young fish are known in southern waters as whitefish and snap mackerel. [See "Bluefish" in Northern Coast Fishes.]

ELACATIDÆ.

CRAB-EATER; cobia; sergeant fish.—*Elacate canadus*. Gill.

This fish resembles the pickerel of fresh water in form, size, and habits, particularly in the long under jaw which distinguishes the pike family. Body long and narrow, sub-cylindrical, marked with alternate dark and light olive horizontal stripes that extend from the gills to the tail; belly white; tail deeply crescentic, the upper lobe being the longest. It has moreover a black stripe along its sides which gives rise to its local name of "sergeant fish." Length three to five feet. It is common on the east coast of Florida, particularly on the Indian River, though its range extends to Massachusetts. It prefers clear water, and subsists on smaller fish and crabs, lurking under roots and sea weed, from which it darts upon its prey. Takes the hook freely.

ECHINEIDÆ.

SUCK-FISH.—*Echeneis lineata*. Holbrook.

The body of this fish is similar in form to the cobia, except that its tail is nearly square. It is banded like the cobia too, but

the stripes are clouded yellow and sulphur color. The belly is white and the tail bluish margined with white. It has a large broad head which is concave on top, where it is occupied by an oval adhesive disk bordered by a fleshy thick movable substance, and divided in the mesial line, on each side of which are twenty-one transverse plates, their free margins divided backward and serrated. By this disk it attaches itself to any object, and is found adhering to the bottoms of boats, and to the bodies of large fish. It is frequently taken with blackfish, (sea bass) and is attracted by the same bait.

ESOCIDÆ.

Pike.—*Esox lucius*, or *reticulatus*.

In the salt waters of Chesapeake Bay is found a true pike whose habitat, it has been ascertained, is confined almost exclusively to salt water. Some who have been cognizant of this fish have maintained that it was a distinct variety, but there seems to be no doubt of its identity with the inland pike, and we find it referred to as *Esox reticulatus* (Le Sueur, *et al,*) and *E. lucius* (Mitchell), in the Reports of the Maryland Fish Commissioners, the most valuable work of the kind that has yet been issued. Our extended investigations show that these fish spawn in the Patapsco, Magoty, Chester, Sassafras, Choptank and Annapolis Roads. There are few caught below the Choptank, and scarcely any above the Sassafras River. They are taken every day in the year, the largest quantity in extreme cold weather, when they are brought to market by wagon loads. At Norfolk they are not common. Prof. Ellzey, of Bladesburg, Virginia, says that they were very numerous six or seven years ago at West River, Maryland, where they were caught in seines in February and March, but during the past few seasons only occasional specimens have been taken. He volunteers the opinion that they might be taken with the fly. Prof. Beal, of the Gown Agricultural College, says he has known of their being taken through the ice in winter with a hook.

"While residing at Annapolis, I had several opportunities for examining this fish when fresh from the water, and should pronounce it identical with the common fresh-water pickerel (*Esox*

reticulatus) of the Eastern States. The color and markings upon the sides are the same, and their habits of lying in shallow water near the shore and in bunches of weeds are also similar. It is possible that a specialist in ichthyology might discover differences, but they are not apparent to the eyes of an ordinary student of nature. The water of the creeks and inlets about Chesapeake Bay are but slightly salt, and but little affected by tides, and are lined about the shores with patches of weeds and rushes, forming just the sort of places that the pickerel loves to inhabit. I see no reason for supposing that the pickerel should not live in salt water if the other conditions were suited to its habits, as they so evidently are here. The only way that I ever knew of these salt water pike being taken was by the seine and by fishing through the ice in winter, precisely as is done for pickerel at the North."

Mr. S. R. Scoggins, a veteran marketman of Baltimore, claims these pike are essentially a salt water fish, and will not go into fresh water. He says, "I have been among them for thirty years, and never knew one to be caught in fresh water unless it had strayed away from the school and was in a sickly condition. Possibly they go into fresh water to spawn.

A careful examination of five specimens of these fish, that averaged some twenty-two inches in length, and a comparison of the same with the fresh-water pike, discovered but very slight variations as to fin-rays, color, markings, and general structure, as between each other and the inland fish. We give the formula for two specimens which showed the greatest variation:

Length of body twenty-two and one-half inches; head six inches. Fin system: D. 18; P. 14; V. 10; A. 15; C. 20.

Length of body twenty-one inches; head five and one-half inches. Fin system: D. 18; P. 12; V. 9; A. 15; C. 20.

Color: Back, deep green; sides, olive yellow; belly, white; under fins and throat, deep red; upper fins, green; irides blue with yellow rim; numerous dark streaks on body producing a reticulated appearance.

The fin-ray formula for the inland pike, as given by De Kay and other authorities, is as follows:

D. 18; P. 16; V. 10; A. 14; C. 19.

Color and description nearly as given above.

SKIPJACK ; skipper ; saury ; bone-fish ; lady-fish. —*Scomberesox scutellatus.* Le Sueur.

This fish belongs to the genus scomberesocidæ, and as the name implies, this fish combines the characteristics of the mackerel and the pike. He is a beautiful fish, growing to several pounds in weight, is shaped like a pike, with fins similarly located, large mouth well armed with teeth ; dark blue on the back, silvery on the sides, and white on the belly ; fins white. He is as voracious as either the pike or mackerel, and takes bait, spoon, or flies freely. He is often hooked when not wanted while angling for other better fish. Very common in southern waters, especially in Florida. Tastes well enough, but is bony. Plays havoc with light tackle, and affords good sport.

MUGILIDÆ.

MULLET.—*Mugil lineatus.* Mitch.

There are several species of the mullet. They are found everywhere in the bays and sounds in immense shoals, and are taken in seines and cast nets in size from half a pound to six pounds. It is a very valuable fish to the inhabitants, since it takes salt better than any other southern species, being equal to the mackerel in that respect. It also furnishes a valuable food in its spawn, which is salted and smoked. It is also used extensively as bait for most other fishes. The mullet appears to subsist upon the minute animals found in the mud, with which substance its stomach and intestines are usually found to be filled. Eaten fresh, the mullet affords a rich and savory food. Spawns in January and February in strong currents on the surface.

ELOPIDÆ.

JACKMARIDDLE ; pounder ; big-eyed herring.—*Elops saurus.* Linn.

Color pale green on upper part, and white with roseate tints at the sides ; fins yellowish. Length thirty inches. Taken with hook and bait from June to October. Not esteemed as food.

JEWFISH ; tarpum.—*Megalops thrissoides.* Günther.

An immense fish, with bony white silvery scales two inches in diameter, covering the whole body, weighing often five hundred

pounds and upwards. Will take a hook, but not a convenient fish to handle. Very common in Galveston Bay and on the Florida coast.

SILURIDÆ.

SALT WATER CATFISH.—*Ariopsis milberti*. Gill.

Much resembles the fresh water catfish, but is a handsomer fish, both in form and color. It has the barbels dependent from the mouth, and strong spines in the pectoral and dorsal fins, capable of inflicting painful wounds upon careless hands. They are numerous, and greedy biters, but are generally thrown away, or left for the coons and buzzards. Size in the Indian River, Florida, ten or twelve pounds. At Mosquito Inlet, from two five to pounds.

A SHORT LECTURE ON FISHES.

OF all the animals composing that great branch of the animal kingdom called vertebrates, the fishes are the simplest in structure and intelligence, and are the oldest in the history of the globe, as shown by the remains in the rocks. Fishes being destined to an active life under water, have all their organs adapted to this purpose—gills instead of lungs, limbs shaped as fins, and so forth. They differ in form, but all have the simple outline of a large head, no neck, and the body tapering gradually to the end of the tail. Some have no fins, but generally they are present, and arranged in pairs symmetrically, or singly on the back or abdomen. Behind the head are large openings leading to the gills. The water entering the mouth in breathing, is driven across the gills and escapes by these openings. The scales greatly vary, their shape forming one of the characters by which a fish is classified. They are horny plates similar to our finger-nails, containing minute, polished plates of color, giving certain fishes a dazzling brilliancy of tinting that reminds us of gold and silver.

The skeleton of fishes is either horny or made of cartilage, which is a tough, elastic substance, better known as "gristle." It is composed of a head, trunk and limbs. The head is made up of a large number of bones intricately put together, particularly those supporting the arches of the gills and gill-covers (*operculæ*), the tongue and neighboring parts, which has been termed the *hyoid* apparatus. Next behind the skull comes a chain of bones called *vertebræ*, extending the whole length of the body. Each vertebra is shaped like an hour-glass, and is armed with spines and projections termed *processes*, some of which, by interlocking, hold the vertebræ more firmly together, while others give a strong attachment to muscles. This chain is the backbone or vertebral column, which, by its presence in every fish, bird, reptile, and mammal, unites them into a single group—the *Vertebrata*. Above the

backbone runs the *spinal cord*, that is the great nerve, which is a continuation backward of the brain, protected by a bony tube, and underneath it the great artery from the heart that supplies the body with blood. To the sides of the backbone the ribs are all attached, when present, and upon the spiny processes which project upward is carried the framework of the fins of the back and the tail. The side fins are supported upon the end of some flat bones hinged to the backbone, which answer to the fore-limbs in higher animals, but the ventral or belly fins are fixed more simply. The skeleton in fishes like the sharks and skates is very different, not being bony at all, but composed entirely of cartilage; hence they have been named *cartilaginous* fishes.

Most fishes swim with great rapidity, using their tail alone to get ahead with, balancing and steering somewhat with their fins. Many possess a very peculiar organ, called the *swimming-bladder*, situated in the abdomen, this is a sac filled with air, and so arranged that the fish can increase or decrease his weight with respect to the water (*i. e.*, his specific gravity), and so sink or float as he desires.

The life of a fish is occupied wholly in providing its food and escaping its enemies; its senses are dull, and it seems to be without any remarkable instinct. Yet it has a brain, abundant nerves, and all the organs of sense. Fishes are great eaters, and nearly all live upon flesh. Some have no teeth, but generally there are large numbers in different parts of the mouth and throat, which vary widely in form, number and position. The horrid set which the shark carries is regularly shed and replaced by new. The blood of fishes is red and cold, but it seems to circulate slower than in warm-blooded animals, and the heart is more simple. Some fishes, like the electric eel, have the remarkable power of producing electricity. Fishes multiply by means of eggs, some species producing hundreds of thousands at a single spawning—as the dropping of the egg is called; yet perhaps not more than one in a thousand of these eggs ever results in a full grown fish.

Certain fishes change their residence with the seasons, or according to their habits, especially their habit of spawning. This migration in some is from north to south; in others from deep to shallow water and back again; and many from the sea up rivers

and down again to the sea. One of the best known examples of this latter class is the salmon, and I will give you a description of their habits in the words of Milne-Edwards, an eminent French naturalist :

"Each spring it enters the rivers in vast troops to ascend them, even to their sources. In these migrations the salmon follow a regular order, forming two long files, united in front, conducted by the largest female, who precedes, while the small males form the rear guard. These troops swim in general with much noise in the middle of rivers, and near the surface of the water if the temperature be mild, but nearer the bottom if the heat be great. In general, salmon advance slowly, sporting as they proceed ; but if danger appears to threaten them, the rapidity of their course becomes such that the eye can scarcely follow them. If a dyke or cascade opposes their progress, they make the greatest efforts to overcome it. Resting on some rock, and extending the body suddenly and with violence after being curved, they spring out of the water, leaping occasionally to the height of fifteen feet in the air, so as to fall beyond the obstacle which stops them. Salmon ascend rivers even to their source, and search in the small streams and tranquil places a bottom of sand and gravel adapted to the deposition of their eggs. The eggs are deposited in a trough dug by the female in the sand ; they are afterward fecundated by the male. The young salmon grow very rapidly ; and when they are about a foot long they leave the rivers to repair to the sea, which they quit in its turn to again enter the river * * * toward the middle of the summer that follows their birth."

These periodical visits are taken advantage of by fishermen, and it is then that all the salmon, herring, mackerel, cod, and other fishes we use, are caught and cured.

I have no doubt you will be satisfied if I only mention the classification, and I have little time to do more. It is a very large class and contains four sub-classes—The *Myzontes*, the true *Fish*, the *Ganoids*, and the *Selachians* or cartilaginous fishes. The myzontes are so low and shapeless that they were at one time classified with worms. Many of them live as parasites on other fishes ; some holding on by means of a round sucker-mouth, like the lamprey eel. The true *Fish* belong to two orders, separated

by the shape of their scales, which in such fishes as the perch and most of our fresh water species, are jagged and comb-like along the posterior edge, while in the case of our friend the salmon, the scales are round and smooth at the edges. The sub-class includes about two-thirds of all the fishes, and are the easiest examples for you to study.

(A) *Ganoid* fishes are well represented by the gar-pike or bill-fish of the western rivers and the common sturgeon. The main part of this group, though, consists of fossil fishes, which are found in the same rocks from which we get our soft coal. Many of these odd fishes who perished so long ago looked very much like small alligators, and others were like our bill-fishes and fikes.

To the fourth and highest sub-class belong those fishes like the sharks and rays or skates, that, instead of a bony skeleton like the true fishes, have one of cartilage. The sharks are noted for their ferocity and their insatiable appetite. They abound especially among the coral islands of the Pacific Ocean, where the people spend about as much time in the water as on land. But so accustomed do they become to them and so fearless, that it is said an Islander does not wait for the shark to rush upon him, but attacks him instead, with only a knife or sharp stick for a weapon, and generally conquers. The sharks are obliged to turn over to seize anything, their mouth being a good ways back from the end of the snout, which gives the swimmer an opportunity to plunge in his knife. All sharks, however, are not so large. The rays or skates, or their cousin the torpedo, are also flesh eaters, but not so fierce as the sharks. They are easy to recognize by their nearly square shape, with the head at one corner and the long tail at the other. The two remaining corners are made by the very large side fins. The many slender bones spreading out like rays from the shoulder to the edge of this fin gives them their first name, but why they are called "skates" I cannot tell.

ERNEST INGERSOLL.

DOGS USED FOR SPORT.

THE ORIGIN OF THE DOMESTIC DOG.

THERE appears to be a wide difference of opinion among naturalists as to the stock from which our dogs of the present day came. Some have it the wolf, others the jackal, or fox, while not a few claim that the dhole, or wild dog of India, is the source from which sprang all the varieties. In our opinion it cannot be declared with any degree of certainty what the parent stock was. Certain it is that to no one animal can the paternity of these useful races be credited, as they are so widely different in form, color and other characteristics, and man could never have developed and brought together such vast differences, opposite natures and shapes as can daily be seen in domestic dogs, unless the original species were in possession of the rudiments. Neither could food, climate, or any contrivance whatever so completely alter the nature, decrease the scenting powers, render the coat short, long, or curly, lengthen or shorten the limbs, unless separate types had furnished the material.

Ancient bas-relief and monumental delineations picture the dog as distinct in its characteristics thousands of years ago as at the present day, and fossil remains have been repeatedly discovered so little resembling either the wolf, jackal, or fox, and so different in type, as to be classified with the spaniel, terrier, hound, bull dog, turnspit, pointer and pug; and as these, or a part of them, we know to be made dogs, or in other words hybrids, the species must have been fully as numerous then as at the present time.

There are numerous species of wild dogs differing from one another almost as much as our own domestic animals of to-day. Granting that the spaniel, grey-hound, and terrier, sprung origin-

ally from the wolf as some argue, why not point out first why the male dogs are so dissimilar? and again, why the wolves of different countries are unlike, and which species of wolf is the true and only one? Without wishing to conflict with the opinions of those so much more learned on the subject than ourselves, we would ask, would it not be much more reasonable to suppose, without positive proof, that the origin of the domestic dog can be referred to numerous aboriginal species, crossing with the wild varieties, as we know our dogs will frequently do, including the wolf, jackal, and the fox if we like; climate assisting, and man aiding by judicious intermixing and breeding, until the present high standard of this useful animal has been reached?

The Indian dogs may be traced to the prairie wolf, and in Asia the native domesticated dog to the jungle dog. Whatever may have been the originals of the partly tamed canines of the aborigines of the different sections of the globe, it is probable that the primitive dog, like other animals, was very different from any of the present races.

THE NATIVE OR ENGLISH SETTER.

We do hardly more than attempt to give our readers a general idea of the various kinds of dogs used by sportsmen; not entering into minute descriptions of their specific characteristics. There is a wide diversity of opinions respecting the points and sporting qualities of the various species of dogs, which will probably never be harmonized.

A proper setter dog, as judged at the show bench, should be neither overgrown nor diminutive. He should stand square upon his legs, which should be neither too long nor too short, but in proportion with the size of his body, and by all means standing a shade higher before than behind. Tail should come out well up, and be straight or scimeter-shaped, and should be carried on a level, or rather above the level of the back, and by no means too long. A tail reaching to the gambrel joint, or an inch below, is about right. A cut tail is not excluded from our bench shows unless so cut as to disfigure the dog. The chest should be deep and somewhat rounded; loins, muscular. Feet should be rounded and somewhat feathered between the toes. A short, thick neck never looks well.

Ears should be long and somewhat rounded at the points, but not so long as to give a spaniel look, and they should be well coated, fringe hanging below the rim. A thick ear would indicate ill breeding. Head should be broad at the top, and nearly square to the eyes, and the latter should be full, bright, of gentle expression. Muzzle should be well squared out, and lips slightly pendulent. Coat should not be curly, but long and wavy. Many persons prefer that the feather on the hind legs should extend below the gambrel joint, and many of the best bred dogs have it, but we do not consider it either ornamental or useful. Black nose and eyes are distinguishing marks of high breeding, besides adding much to the beauty of the dog.

In regard to the best colors for a dog for field purposes, a great diversity of opinions prevails. In shooting over an open country—the prairies, for instance—it does not matter so much about colors; but in shooting in dense coverts it is important, we think, that a dog should be of such colors as can readily be seen—such as orange and white, lemon and white, black and white, or black, white and tan.

Setters of various strains are the preferred dogs of the country for general service, their thick coat of hair protecting them from brush and briars in tangled cover, and from wet and cold; while thick tufts of hair about their toes save them from injury by sharp stones and close cut stubble. One objection to setters is, that they cannot stand the summer heats, and another that their coat catches burrs and other trash, which often put them to great inconvenience and discomfort; they in some instances refusing to work at all in burrs.

With regard to the much discussed question whether a setter ought to be taught to retrieve, we reply: "Certainly; we want a dog that will save us the trouble of picking up our dead birds and walking long distances after them." Retrieving is one of the chief characteristics of the setter. The ancestors of this animal were retrieving spaniels, and it was their first propensity to fetch and carry. In England most of the gentlemen who patronize field trials state that the birds should not come in too close contact with the dog's nose as it injures the scent. Suppose it does, which we are inclined to disbelieve. To talk plainly, the majority of our

sportsmen do not wish to be bothered, nor have they the time, inclination or estate to keep a large kennel of dogs. What is required in our country for the field sportsman is a good *all round* dog, an animal that will be staunch on ruffed grouse, woodcock, quail and snipe; not that he would be particularly grand on either game, but his action, ranging and nose should be fair, and give help, amusement, and a medium bag to the shooter. When gentlemen talk of pedigree, blood, performance, grand high-headed action in the field, it is a very different kind of animal to the ordinary sportsman's dog (we should all wish to own this style of setter, but how few there are). This dog on account of his rarity and great value, is only to be found in the hands of the careful breeder, and is usually kept wholly and solely as a stud dog or brood bitch. We should advise the breeder not to handle his *breeders* to retrieve, but when the progeny have been sold, it is the business of the field sportsman to train, break, and develop his retrieving qualities. The yearling of the above description should be *thoroughly broken* in one long season's shooting. How many setters could be sold to-day, however well trained and broken, if they were deficient in retrieving?

Certain schedules of points have been adopted for each kind of dog, by which judges are governed; and as these are sufficiently specific to afford a proper idea of what a dog should be, we are content to print them here without further comment. We choose to adopt the formulæ, as given by the London *Fancier's Gazette*, in each variety. For the English Setter we quote:

POINTS IN JUDGING.

Head	25
Neck	10
Shoulders	15
Legs	10
Feet	10
Loins and Thighs	15
Coat	10
Stern	5
	—100

THE IRISH SETTER.

Of this breed of Dogs, "Idstone" says in London *Field*:

This breed has long been known to sportsmen throughout Great Britain as a good one, especially in point of stamina, and a class was set apart for it at Birmingham in 1860, a year before the

black and tans were similarly favored. In 1873 Dr. Stone came out with his Dash, who was admitted to be almost perfect in shape, and of the true type. He took every prize until age compelled his retirement in favor of Mr. Hilliard's Palmerston, who may now be considered the best public representative of the breed. Dash is of Dr. Stone's own strain, which he has kept to himself for twenty-five years, in color blood-red, showing white on his head and toes, and also on his neck, with great quality, and a faultless frame.

After a great deal of discussion, a separate class has been made in Dublin and elsewhere for reds and white and reds, it being shown that there are two distinct strains of the Irish setter of these colors respectively. The white and reds stand no chance in the open classes, and yet it was considered hard to debar them from all prizes, especially as by some good judges they are thought to possess better noses than the reds. According to my judgment the rich red, or blood-red color as it is described, is made a little too much of, and I should strongly object to the passing over of excellence in shape because the color is too pale, a marked instance of which happened at the Brighton show of 1876.

The old breeds of this dog most celebrated are the O'Connor (generally known as La Touche), Lord Dillon's, Lord Clancarty's, Lord Lismore's, Lord de Fresne's, (usually called the French Park), the Mount Hedges, Lord Rossmore's, and the Marquis of Waterford's. In modern days Dr. Stone, Major Hutchinson, Capt. Cooper, Capt. French, Mr. H. B. Knox, Hon. D. Plunket, Capt. W. Allaway, Mr. Hilliard, Mr. Lipscombe, Mr. C. Brien, and Miss Warburton have been most successful on the show bench; but, with the exception of Plunket, none of them have proved the excellence of their strains at any field trial.

In points the Irish setter only differs from the English in the following:

1. The skull is somewhat longer and narrower, the eyebrows being well raised, and the occipital prominence as marked in the pointer.

2. The nose is a trifle longer, with good width, and square at the end; nostrils wide and open, with the nose itself of a deep mahogany or very dark flesh-color, not pink or black.

3. *Eyes, ears, and lips.*—The eyes should be a rich brown or

mahogany color, well set, and full of intelligence ; a pale or gooseberry eye is to be avoided. Ears long enough to reach within half an inch or an inch of the end of the nose, and, though more tapering than in the English dog, never coming to a point ; they should be set low and close, but well back, and not approaching to the hound's in setting and leather. Whiskers red ; lips deep, but not pendulous.

5 and 6. In frame the Irish dog is higher on the leg than either the English or black and tan, but his elbows are well let down nevertheless ; his shoulders are long and sloping ; brisket deep, but never wide ; and his back ribs are somewhat shorter than those of his English brethren. Loin good, slightly arched, and well coupled to his hips, but not very wide ; quarters slightly sloping, and flag set on rather low, but straight, fine in bone, and beautifully carried. Breeders are, however, going for straight backs like that of Palmerston, with flags set on as high as in the English setter.

7. Legs very straight, with good hocks, well-bent stifles, and muscular but not heavy haunches.

8. The feet are hare-like, and moderately hairy between the toes.

9. The flag is clothed with a long, straight comb of hair, never bushy or curly, and this is beautifully displayed on the point.

11. The coat should be somewhat coarser than that of the English setter, being midway between that and the black and tan, wavy but not curly, and by no means long. Both hind and fore-legs are well feathered, but not profusely, and the ears are furnished with feather to the same extent, with a slight wave, but no curl.

12. The color should be a rich blood red, without any trace of black on the ears or along the back ; in many of the best strains, however, a pale color or occasional tinge of black is shown. A little white on the neck, breast, or toes is by no means objectionable, and there is no doubt that the preponderance of white, so as to constitute what is called " white and red," is met with in some good strains.

In his *work*, the Irish setter is fast and enduring ; his nose is quite up to the average of fast dogs in delicacy, and to those who

are limited to a small kennel, he is an invaluable aid to the gun. His style of going is very beautiful, with head well up and feeling for the body scent; he has a free action of the shoulders, hind-legs brought well under him, and a merry lashing of the flag on the slightest indication of scent—often, indeed, without it. His advocates contend that he is as steady as any other setter when once broken, but, as far as my experience goes, I scarcely think this position can be maintained. Neither Plunket nor any that I have seen of Mr. Purcell Llewellyn's breeding, nor indeed any of those which I have had out in private, have been always reliable, and I fear that, like almost all other setters of such high courage, it must be admitted that he requires work to keep him in a state of control fit for immediate use with the gun. In this respect, and indeed in delicacy of nose, both the English and Irish setter must yield to the black and tan of the best strains; but to do the same amount of work, at least a double team of the last mentioned must be kept.

POINTS IN JUDGING.

Head	20
Neck	5
Legs	5
Feet	5
Stern	5
Shoulders	15
Back	10
Loins	10
Hind-quarters	15
Color	10
	—100

THE BLACK AND TAN (OR GORDON) SETTER.

The general opinion is that the Gordon setter owes its origin to Irish blood, which in a measure is substantiated by the fact that red pups often make their appearance, even when bred from the most reliable strains, and there is no doubt that setters in general were originally manufactured from the spaniel; but whether the color of the Gordon is derived from the black spaniel or the Scotch colley, is a query that cannot now be easily answered. The curl in his coat could not have resulted from his taking the water. A curly coat is a great fault in the setter of any breed, and would be dead against one on the show bench. Of this strain of dogs, Mr. Walsh says, in London "*Field*":

The black-tan setter, until the institution of shows, was com-

monly called "Gordon," from the fact that the Dukes of Gordon had long possessed a strain of setters of that color, which had obtained a high reputation. * * * But, in spite of successes, it cannot be denied that the general opinion of good sportsmen has not been in favor of the breed since the institution of field trials, in which it has been brought into competition with the English and Irish setter. * * * Among the numberless specimens of the breed (black-tan) which I have seen at work, not one has shown the solicitude to catch the eye of the shooter which is so essential to the perfect correspondence of man and dog which ensures sport. The pointer or setter ought always to know where his master is, and if put into high covert, such as beans, should raise his head at short intervals above them to ascertain his whereabouts. Now, as far as my experience goes, black-tan setters, and notably the Kents, never do this, and cannot be taken off a scent, without very great severity, till they have satisfied themselves of its fallacy. Most of those tried in the field have been dead slow. On the whole it may be said that the verdict has gone against the breed in England, and as far as I know, no breeder of experience in the south adheres to it, with the exception of Mr. J. H. Salter; nor is it much more approved of on the moors by the general public.

The *points* of the black-tan setter are very nearly the same as those of the English dog, the only deviations being as follows:

1. The *skull* is usually a little heavier than that of the English setter, but in other respects it resembles it.

2. The *nose*, also, is like the English setter; but it is usually a trifle wider.

9. The *flag* is usually a trifle shorter than that of the English setter, which it otherwise resembles in shape.

11. The *coat* is generally harder and coarser than that of the English or Irish setter, occasionally with a strong disposition to curl, as in the celebrated champions, Reuben and Regent.

12. The *color* is much insisted on. The black should be rich, without mixture with the tan, and the latter should be a deep mahogany red without any tendency to fawn. It is admitted that the original Gordons were often black, tan, and white; but, as in all our shows the classes are limited to black-tan, the long arguments

which have been adduced on that score are now obsolete. A little white on the chest and a white toe or two are not objected to; but a decided frill is considered by most judges to be a blemish. The red tan should be shown on lips, cheeks, throat, spot over the eyes, fore legs nearly to the elbows, hind legs up to stifles, and on the under side of the flag, but not running into its long hair.

POINTS IN JUDGING.

Head	20
Neck	5
Legs	5
Feet	5
Coat	10
Shoulders	15
Back, loins and hind-quarters	20
Stern	5
Color	15
	—100

THE POINTER.

It is noticeable that we have in America far more well bred setters than pointers, and greater attention seems to have been paid in the last two years in procuring the former blood than the latter. This arises from the fact that the setter is the greater favorite of the two, and justly the choice of the sportsman when he desires a dog that will unflinchingly stand the rough and tumble nature of our shooting. Still, we are sorry to see the balance so much weighed down by the setter, for fear the staunch pointer may be finally crowded out entirely. Of the two, the point of the shorter haired animal is far the most marked when on game, and the training once received by him is always retained, and on each returning shooting season he enters the field to be depended upon while the setter oftener has to be partially rebroken each year; and if not owned by a sportsman who shoots continually, becomes headstrong and unreliable.

For the person whose business will not allow him to take his gun in hand but two or three times in the autumn, we advise by all means that his dog should be the pointer; but for the one who takes advantage of the open season for different game from its beginning to its close, we recommend the setter as best able to bear continued work in all descriptions of cover.

The short hair of the pointer enables him to do work on the

prairies, where water is seldom found while "chicken" shooting, and he can do without that necessity for a much longer time than the setter; but the latter is frequently used with advantage for the same purpose when a supply for his benefit is taken to the field. In New Jersey, Delaware and Maryland, and in countries where the game invariably takes to briery thickets on being started, the pointer is at a disadvantage, for we have seen but few that were not intimidated by these thorny coverts, refusing entirely to enter. Moreover, the pointer is more liable to take cold when hunting in wet land than the setter is.

Far more birds are accidentally flushed by the setter than the pointer, who is generally more cautious, notwithstanding he may be fully as fast. Certainly we cannot condemn those that write in favor of the pointer as having the best nose, for they are given strong proofs of its truth.

The pointer originally is a cross of the Spanish dog with the grey-hound or fox-hound, by which the delicacy of the nerves of the nose, to some extent, is diminished, and the body rendered more light and elegant. No dog has a higher sense of smell, or shows greater intelligence or docility. The principal reason that he becomes rigid, or points, by the scent of game is from the extraordinary condition of his nervous system, acquired hundreds of years ago and handed down to him in a fair unbroken line by his ancestors. A thoroughly broken pair of high-bred pointers are so obedient to the voice and gesture of their master and so well trained to act with each other, that a wave of the hand will separate them, one going to the right and the other to the left, so that they hunt the entire ground, crossing each other regularly in front of the sportsman as he walks forward. There is one matter that is generally overlooked in ranging with the pointer. If in early life you have taught him to retrieve, and a case occurs in the field where he has to cross a stream, as the dog returns with the bird, never tell him "down charge." His coat is so thin, and as we said before, his organization so delicate, that he is sure to catch cold; therefore by all means allow him to run around a little, taking care not to disturb other game. The color, size, etc., of the pointer have so often been described, we will leave that to the discretion of the sportsman, and remark that they ought, if possible,

to be light colored, so that the animal may be readily distinguished from the grass, herbage, etc., as no doubt the dark colored dog is very attractive to the eye in the house, but cannot be seen so easily in the field, thereby causing much annoyance to the sportsman.

The pointer we should never teach to retrieve as a rule. Pointers are, or ought to be, used for open field shooting only, as their delicate organization, thin skin, slight coat, and having no hair between their toes, prevents them retrieving successfully through scrub oaks, thick cover, swamps and water. Nine times out of ten a shooter will tell his pointer to charge after he has just fetched a snipe or cock out of a heavy watery swamp, *to the contrary notwithstanding ;* the dog having comparatively little clothing will take cold. It is true that a high-blooded pointer will go anywhere, but not without ill effects to his person, such as drawing blood and otherwise injuring his physique. We think it is quite sufficient for the pointer to stand his dead bird. Pointers do not make as good retrievers as setters for the reasons stated above, and moreover if most of the celebrated retrieving pointers be traced back one or two generations, it will very likely be found that the grand dam or grand sire was a setter, which will account for this inherent retrieving propensity.

We consider the split nose a decided objection in either setter or pointer, but particularly in the latter as indicating impurity of breed. It probably originated with the old Spanish breed of pointer, and now crops out occasionally where there is mixed blood. If it were merely a freak of nature, as some contend, it could not be transmitted or reproduced as it undoubtedly is when dogs possessing it are bred from. The word "dropper" is used to designate the cross between setter and pointer only, and a very good word it is.

Points for the Show Bench, as given by the *Fancier's Gazette* are:

Head should be moderately long, narrowing from the skull ; the skull not too prominent above the eyes, as this gives a heavy appearance ; rather deep in the lip, but not any flaw, or very slight ; nostrils open, with level jaw ; eyes moderately bold ; ears thin, set in to the head, just where the skull begins to recede at the sides of the head, hanging flat on the cheek ; throwing the ears back so as to show the insides has a bad appearance, and too often indicates a cross ; neck medium in proportion to head, and body rather

inclined to be long, but not much so, thickening from the head to the set in of the shoulders; no looseness of the throat skin; shoulders narrow at the meeting of the blade bones, with a great amount of muscle, long in the blades, set slanting, with arm of the leg strong and coming away straight, and elbow neither out nor in; the legs not great heavy boned, but with a great amount of muscle; leg pressed straight to the foot, well rounded and symmetrical, with foot well rounded, this is the fore legs and feet; chest moderately deep, not over wide, but sufficiently wide and deep to give plenty of breathing room; back level, wide in loins, deeply ribbed, and with ribs carried well back; hips wide and full of muscle, not straight in the hock, but moderately bent; stifles full and well developed; the stern nearly straight, going off tapering to the point, set in level with the back, carried straight, not above the level of back; symmetry and general appearance racy, and much beauty of form appears to the eye of a real pointer breeder and fancier. The weights we consider best for different purposes are from fifty pounds to about sixty-five pounds. Coat short and glossy, but a deal here depends on condition.

POINTS IN JUDGING.

Head	25
Neck	10
Shoulders	15
Legs	10
Feet	10
Loins	10
Stifles	5
Stern	15
	—100

Color and Coat.—The coat ought to be very short and soft, and fine, and the skin thin and flexible. Most people in England prefer the lemon-and-white to liver and white, or black-and-white.

CHESAPEAKE BAY DOG.

This is the dog *par excellence* for ducking in those waters where great courage and endurance is required; not simply a retriever but a dog who will face the heaviest seas or surf; a dog that will scramble over, or, if needs be, dive under the heaviest ice. That his ancestors came from the Irish coast appears to be generally conceded, yet, with the exception of color, we can find no trace of any similar breed of dogs, omitting of course those specimens which, being crossed at a later day, possess some marked characteristics of the water spaniel. He is smooth-haired, which is a great point, as the Newfoundland suffers terribly from

the freezing of his shaggy coat; his color is either black, with white breast and grey nose, or tawny yellow, the latter preferred. Generally he is fierce, and the best of watch-dogs, deep-mouthed and powerful. A writer in *Appleton's Journal* says:

"I have seen one—a mere puppy—sit for hours in the summer watching the fish hawks as they pursued their craft. Whenever the hawk would make his plunge, Leo would rush through the "jumping water" and swim for the spot. He never brought out a hawk that I know of, but never seemed to be discouraged at his failures. One used to be famous for his thieving propensities. He would sneak off and seize every duck he could lay his teeth on and deposit it on his master's pile. Another would never touch a whiffer or southerly unless ordered by his master to do so, but would swim a half-mile through floating ice to secure a canvas-back or red-head."

The Maryland Fanciers' Association has divided the Chesapeake Bay Dogs into three classes, as follows: First, the otter dog, second, the curly-haired dog, third, the straight-haired dog. The color of the first class is a tawny sedge, with very short hair. The color of the second class is a red brown. The color of the third class is a red brown. The bitches must show the color, and approximate to the general points of the class to which they belong. In the three classes a white spot on the breast is not unusual. Measurements as follows: From fore toe to top of back, twenty-five inches; from tip of nose to base of head, ten inches; breast, nine inches; around fore feet, six inches; around fore arm below shoulder, seven inches; between eyes, two and one-fourth inches; length of ears, five inches; from base of head to root of tail, thirty-five inches; tail, sixteen inches in length; around muzzle, below eyes, ten inches.

POINTS IN JUDGING.

Head	15
Neck	5
Shoulders	10
Chest	15
Size	5
Loin	10
Coat	15
Tail	5
Feet	10
Legs	10
	—100

THE IRISH WATER SPANIEL.

Throughout Ireland the brown water spaniel is found quite generally, but the best breed is somewhat scarce and is confined

to the kennels of a few gentlemen. This strain is readily known by its marked peculiarities. The larger the dog is the better it is appreciated among fanciers. The body is round and strongly made, the legs are rather short, the feet broad, the hind quarters or stern should be short, broad and tapering to a fine string, and covered with short hair like a pointer. Some have short, crisp curls, and in this case there should be no straight hair or fringe.

The head should not be broad or coarse; the nose should be long and free from wave; the ears should be long and so broad in the leather that they will meet across the nose, and be covered with the long ringlets which give the animal such a striking appearance. A moustache is considered a sign of bad blood or impurity; so this is an important point to be considered by purchasers or breeders.

On the forehead, between the ears, there is a long ringlet which hangs down between the eyes. This is one of the most important signs of the thoroughbred, and should be carefully noted, as some are inclined to wear a "wig," instead, and in this case such a peculiarity is most objectionable.

The legs of the pure blood are heavily feathered with ringlets, while the remainder of the body is covered with short, crisp curls of a rich, dark liver color, entirely free from white. A breed in the North of Ireland, known as the "Lough Neagh," differs somewhat from this description, and though all are splendid retrievers, yet they are not considered as good as the type described. They are readily recognized by their "feathered" tail.

As a retriever, the Irish spaniel cannot be surpassed. The perseverance and intelligence used in the retrieving of ducks from the soft and miry marsh, the heaviest billows or the tall and heavy rice with which many of our Western lakes abound, convinces us that there is not the equal of this breed from which to produce just such dogs as the sportsmen of this country desire for duck shooting. He is an admirable diver, swift swimmer, and is greatly assisted in these arts by the breadth of its paws. Much of these qualities in the dog is owing to the abundant supply of natural oil with which his coat is supplied, and which prevents it from really becoming wet. A real water spaniel gives himself a good shake as soon as he leaves the lake, and is dry in a very

short time. This oil, although useful to the dog, gives forth an unpleasant odor, and therefore debars him from becoming an inmate of the house; so much the better. Some people fancy that the water spaniel possesses web feet, and that his aquatic prowess is due to this formation. Such is not the case. All dogs have their toes connected with each other by a strong membrane, and when the foot is wide, and the membrane rather loosely hung, as is the case with the water spaniel, a large surface is presented to the water. This dog is of moderate size, measuring about twenty-two inches in height at the shoulders, middling stout, ears very long, measuring from point to point about the animal's own height. The pure bred ones are acknowledged not excelled in beauty or intelligence by any breed. I might enumerate many instances where they have seemed to evince almost the intellect of the human race.

The points of the Irish Water Spaniel, as given in the *Fancier's Gazette*, are:

POINTS IN JUDGING.

Head	25
Ears	10
Feet	5
Legs	5
Back	10
Loins	10
Hind-quarters	10
Coat	15
Stern	10
	—100

THE FIELD SPANIEL.

The field spaniel is remarkable for the intense love which it bears for hunting game, and the nervous manner in which it carries out the wishes of its master. There are two breeds, the one termed the "Springer" being used among the thick scrub oak and brambles, and the other employed principally on woodcock, and therefore called the "Cocker." Some of these dogs continually give tongue while engaged in pursuit of game, and utter different sounds, according to the description of game which they have reached, while others are perfectly mute. Each of these qualities is useful in its way—it should not be too noisy, and the

note should be musical. While hunting the spaniel sweeps his well feathered tail from side to side, never carrying it as high as the back, and is a very pretty object to any one who has an eye for beauty. A spaniel must possess a thick coat, as it is subject to continual wetting from the drippings of the scrub oaks, etc., through which he has to force his way; he should weigh not less than fourteen pounds, and may with advantage weigh thirty pounds, as do the breed known by the name of "Clumber;" these animals work silently. The Cocker is a much smaller animal; his average weight is about fifteen pounds. He is an active and lively dog, dashing about his work with an air of gay pleasure that assists materially in adding to the spirits of his master, and will be found the most useful animal for woodcock in the fall.

RETRIEVERS.

There are two species, the water and the land retriever. The water retriever is, or ought to be, a cross between the smaller kind of Newfoundland dog, sometimes called the Labrador dog, and the setter. This dog is especially useful to the sportsman when shooting wild fowl, through creeks, bayous, etc., and saves him an infinite deal of trouble, and is by no means in the way. Many sportsmen imagine that this dog will scare wild fowl, but his actions teach us just the contrary, as his careful training, natural instinct, and color, act as a decoy rather than otherwise. A good water retriever is, however, seldom to be met with, and should be taught when quite young. Nothing answers this purpose better than shooting divers or any young duck, then sending the retriever in the water, and, after he has got his bird, call him to you, take the bird gently out of his mouth, caress and pat him. In three or four lessons, if the water be not too cold, you will find there will be no necessity of even telling him to fetch, as instinct and his natural fondness for the water will be all that is necessary to make a thorough retriever of him. The great drawback, however, is that he must be kept in almost constant practice, and should be carefully broken from rats, which abound on the banks of rivers and lakes.

The best cross for land is a setter with a springer or cocker

spaniel. If your setter has never been taught to retrieve, a more valuable dog than the land retriever it is hardly possible to possess, especially when shooting woodcock and English snipe in the fall of the year. The head of the race of retrievers, we refer to the large and handsome animal, the Newfoundland. The pure breed of this animal is very scarce, and is not of that gigantic size which it is generally supposed to be.

"Caractacus," in discussing in the *Fancier's Gazette* the question as to whether the Newfoundland dog was indigenous to the island from which he takes his name, says:

"My own opinion is that European settlers, finding dogs of draught an absolute necessity, and thinking they might improve on the native breeds, imported large dogs of various kinds, as, for instance, the mastiff, the colley, the Alpine spaniel, and the Matin-dog of France, and that the present breed sprang from many roots, and has acquired, from change of climate and other causes, certain peculiarities of its own, and that by careful selection a fixed variety has become established. * * * I think the probabilities are that it owes its origin to several types, and that time, selection, and climatic influences have at last worked it into a distinct variety. I have never been able to hit on any record which would tend to prove that such a dog existed when the island was discovered by Europeans; and if any one can point to any that will throw a light on the darkness, I shall be delighted beyond measure."

THE FOX-HOUND.

The fox-hound, of all dogs used in the field, is by far the most numerous. It is generally supposed that the modern fox-hound derives its origin from the old English hound, and its various points of perfection from judicious crosses with other breeds. There are various breeds of dogs which are remarkable for the great development of some peculiar faculty—such as speed in the grey-hound, courage in the bull-dog, delicacy of scent in the bloodhound, sagacity in the poodle, etc., so when a breed of dogs begins to fail in any of these points the fault is amended by the introduction of a dog belonging to the breed which exhibits the needful quality in greatest perfection. The fox-hound has not only the greatest

sagacity and the most refined powers of scrutiny, but is far superior in bottom and stoutness to any other breed of the hound race. Only consider the immense distance a hound travels over during the many hours that he is frequently absent from home. The country he travels over is generally of the very roughest description, such as sharp rocks, scrub oak, brambles, etc., and he frequently takes to the water.

The best breed for fox-shooting is the English fox-hound, crossed with the American hound. The English-bred hound is too delicate. The ground you ride over and the ground you shoot over are totally different. The English dog is too finely bred to suit our rocky ground; its pace is too fast, as, unless it runs in the open, it is apt to overrun the scent. A dog running at thirty miles an hour cannot be expected to hold the scent as strongly as one running at fifteen miles an hour. The speed which can be attained by fox-hounds may be estimated from the well known match which took place upon the Beacon course at Newmarket, England. The length of the course is four miles and 352 yards, and this distance was run by the winning dog, Bluecap, in eight minutes and a few seconds. The famous racehorse Flying Childers, in running over the same ground, was little more than half a minute ahead of the hound. Now, if we compare the dimensions of the horse and the hound we shall form a tolerably accurate idea of the extraordinary speed to which the latter animal can attain. In the match no less than sixty horses started, together with the competitors, but of the sixty only twelve were with the dogs at the end of this short run. The English hound is of the utmost importance to our fox-shooting friends, as what they require in a hound is a good nose, hard feet, padded with a thick sole, strong propelling powers behind, and more endurance than excessive speed, not forgetting a musical tongue, which can only be attained by the cross of the American hound with the English. As there has been so much breeding "in-and-in," and very little fresh stock imported, the fox-hound is sadly deteriorating, as we only hear of a few instances of fresh blood. The first fox-hounds ever brought to Florida, were from a celebrated "pack" owned on the estate of the "Marquis of Berresford," in England. Sir Reginald, (subsequently Marquis) of Berresford came to America and opened ex-

tensive indigo plantations, on the bank of the St. Johns river in East Florida, at a place still known as Lake Berresford, in the beginning of the last century.

Unfortunately for the fox-hound of England, the Marquis soon discovered that the fox of Florida wouldn't run half a mile before he climbed a tree, and fox-hunting was abandoned reluctantly. The dog remained, however, and through neglect they rapidly mixed with the cur of the country, and the blood has become extinct. In the South they have some splendid new blood, which they have crossed with the southern fox-hound, and have produced the perfection of a hound for their purposes.

There are at least five thousand fairly bred fox-hounds in Georgia, and at least twenty thousand if you include Maryland as one of the Southern States. A small, or rather medium size, with bushy tail, and color white and red. The best dogs we have now is a cross of the English fox-hound and a native dog of Maryland. These Maryland dogs are a cross with the long-haired Scotch hound and the old English fox dog imported into Maryland many years since. They combine speed, endurance, and nose, and are only found in Hancock county, Georgia. The hounds most in use in the State of Georgia are a cross of the English fox-hound with a small hound called the beagle, which gives nose to the English dog, but takes away his speed. Excessive speed is not required; a speed of about a mile in two and three-quarter minutes, capable under a hot scent of being increased for a short time to two minutes and ten seconds, is all that is wanted. A fox is killed in an hour at an average speed of three and a quarter minutes to the mile. A medium sized dog is much the best, is often more fleet, and being of light weight his feet do not become sore after a run. Feed greasy mush once a day, when the dogs are not expected to run, and bread once a day. Twice a week give them meat stewed with corn meal, when you do not run them. If you wish to run them in the morning, give them the night before as much hard bread as they will eat, and in the morning, before starting, give each dog a small piece of hard bread to keep him from nausea. Train the pups with the old dogs at one year old, often practicing with a drag, and we find it the only method to train and break cross bred fox-hounds successfully. The best breeds of fox-hounds in

the North are owned in Buffalo; Guernsey county, Ohio; Mr. Taylor's Connecticut farm; the Leatherstocking Club, of Oswego. The points of a fox-hound given in the *Fancier's Gazette* are:

Head expressive, muscular; ears pendent; head a little wrinkled in chap; face rather long, with strong jaw; neck inclined to be long, set into shoulders strongly; the shoulders of great depth and strength, sloping back well, but not so fine and close at point of shoulder blades as a greyhound, as speed is not required so much as in the greyhound, but rather endurance. A model of a stud fox-hound should measure round behind his shoulders thirty-one to thirty-two inches; the elbows should be straight, and neither bowed out nor pressed into the chest; fore leg to continue straight to the foot, as if one bone, but of great substance, full of muscle; from the pasterns the foot must not turn out, but appear straight and round like; the back ought to be straight, wide all through; rigid-backed dogs considered not so pleasant to the eye; it should be well lomed up, not short of ribs, but short in the flank; body an average depth; hind quarters, where set into loin, powerful; thighs full of muscle; stern carried well up, but not as a squirrel's; not feathered; coat thick and smooth. There are different colors, the pie, black and tan, tan and white, and blue grizzles.

POINTS IN JUDGING.

Head	15
Neck	5
Legs	10
Feet	15
Shoulders	15
Back	10
Loin	10
Hind-quarters	15
Stern	5
	—100

HARRIERS.

The Harrier, as its name implies, is used for hunting the hare, and is nothing more or less than a small fox-hound and would be found a very useful animal for tracking rabbits. The American rabbit is a somewhat different animal from its English cousin; the latter in a wild state live together in warrens in immense numbers. The warren is a series of burrows or holes in the ground, of extremely irregular construction, and often communicate with each other to a remarkable extent. The American rabbit, so called, on the contrary live together in couples, bring forth their young on

the surface, and when their offspring are able to take care of themselves they quit the parental roof and forage on their own account. The scent of the American rabbit is much stronger and holds to the ground as it were, for a longer time, and in this respect bears a marked similarity to the English hare. The points of a good harrier are similar to those of the fox-hound. There are necessary points in the shape of a hound which ought always be attended to by a sportsman, for if he be not of a perfect symmetry he will neither run fast nor bear much work. Keep in mind that the hound has much tedious labor to undergo, and should have strength proportioned to it. Let his legs be straight as arrows, his feet round and not too large, his shoulders well back, his breast rather wide than narrow, his chest deep, his back broad, his head small, his neck thin, his tail thick and bushy, and if he carry it well so much the better. Many of our friends will say it is impossible to procure such a dog, so perfect in all his points. Get one as nearly like the description as possible, and such hounds as are weak from the knees to the foot—mongrel breeds of pointers and setters—shoot them at once. Attention to the proper weeding out of bad stock is the only way in which good staunch strains can be bred.

The following are the judging points of the Harrier, as given in the *Fancier's Gazette*:

The harrier's head is something of the stamp of the fox-hound's head, only a little lighter; rather a long neck, deep in shoulder; chest deep; fore-legs straight and muscular, with a cat-like formation of foot; back straight, well ribbed up, with short flank, strong across the loin; stiff and well-bent stifles; stern carried well up. The usual colors are blended pies, black, tan, and white and blue mottles. There are several heights admissible, from eighteen inches up to the height of a fox-hound, judged by the best combination of the essential characteristics.

POINTS IN JUDGING.

Head	15
Neck	5
Legs	10
Feet	10
Shoulders	15
Back	10
Loin	10
Hind-quarters	15
Stern	5
Girth or depth of rib	5
	100

BEAGLES.

Imagine an ordinary fox-hound with his legs cut down about half their natural length and bowed like those of a bull terrier, with nose even elongated beyond that of the hound, and ears of equal flaptitude, and body rounder and chunkier; give him the same tremendous power of yelping and howling—on every and too often on unsuitable occasions—and you have a faint idea of the beagle.

The beagle is a very useful little dog for our junior friends, and is generally used to track rabbits. There are two kinds, the rough and the rabbit beagle; the former is supposed to have been crossed by the terrier, and his bark is rather that of the terrier than the musical intonation of the beagle. The nose of this variety is furnished with the stiff whisker-hairs which are found on the muzzle of the rough terrier, and the fur is nearly as stiff as the terrier's. The dwarf or rabbit beagle, as it is sometimes called, is the smallest of the breed, delicate in form and aspect, but of good nose, and swift of foot. So small are these little creatures, that a whole pack of them have been conveyed to and from the field in baskets slung over the back of a horse, and on one occasion three gentlemen placed thirteen of these little dogs in their shooting jackets, walked to the woods, hunted all day with them, killing eight rabbits, and then returning them to their pockets, thus saving the dogs the fatiguing walk to the woods and back again. These little dogs are chiefly employed by the rabbit shooter, and are not sufficiently swift of foot to hunt the larger rabbit or hare.

Beagles do not trust to their speed entirely for killing game, but to their exquisiteness of nose, tracing it through all its windings with the greatest accuracy. The beagle will puzzle an hour on one spot rather than leave the scent; the slower he goes the less likely he will be to overrun the scent, and will kill the game sooner. The hare or rabbit generally describes a circle as he runs, large or small, according to his strength, and the openness of the country. Among enclosures where there is much cover and sheep-stains, it is a constant puzzle to fox-hounds. Yet the beagle being able to endure great fatigue, will invariably kill his game, if the day be long enough. There are several good strains in this country

at Morristown, New Jersey; Milford, Pike Co., Pa.; and in Guernsey Co., Ohio. Some members of the Dean Richmond Club, of Batavia, have the purest breeds.

No amusement would afford our college students in the country a more health-giving recreation, or a pleasanter afternoon sport than a little *drag hunt* in this lovely autumnal weather. Take, for instance, the best and longest winded runner in the college or school, trailing after him a rabbit skin well saturated with turpentine or aniseed, put the beagle on the scent, and let the boys follow. If the scent be good, and the course lie tolerably straight, the endurance of the boys will be tested, and the miniature hounds often come to a check at a small pool, etc., when the little beauties will start off again in an instant, uttering their flute-like bark, and any one of average strength and speed can easily be in at the finish. Try it, and see if it is not good fun. You ask where are we to get the dogs? A male and female will cost about twenty-five dollars, and in one year's time you will have all the dogs necessary, and be able to supply other friends and schools as they require them. The cost of keeping them is very small, any farmer's son would be glad to keep them for a trifle, say twenty-five cents a week per head.

Beagle points, as given by *Fancier's Gazette*, are:

Head intelligent, eyes most expressive and ladylike, the head much finer in all proportions than that of the harrier which it somewhat resembles; sharp-nosed; body very compact and muscular; short legs; height from twelve to fifteen inches; color same as harrier's. This class is judged almost similarly to the harrier, but so few come under the eyes of the judges, that the breed has not been taken so much notice of as some others; and to define all the separate points required is very difficult. The above will give an idea of what is really wanted for the show yard in the beagle class.

POINTS IN JUDGING.

Head	15
Neck	5
Legs	10
Feet	10
Shoulders	20
Back	10
Loins	10
Hind-quarters	15
Stern	5
	—100

DACHSHUNDS.

In Germany there are two kinds of dachshunds—one with long hairs and bushy tails; these are very rare, but far the best; the other with short hairs. Of these there are only two. First, the regular black with spots over the eyes and on the legs, of a brown color resembling the rust of iron (white throat). Second, the quite brown ones. Other colors are not correct. Of both dachshunds—with long, and those with short hair—there are again some with straight and some with bended legs. The dogs with straight legs are said to be better.

Herr F. Van Ivernor's edition of Der Waidmann, Bavaria, says:

"What they call in Bavaria "dachshunds" are the most *disgusting dogs* I know of. Since the first of January I have killed two and wounded three, and I pay to every one of my gamekeepers, two thalers for the tail, which he must bring as a token that he shot him.

Every peasant here has one or two of these abominable curs, which follow them when plowing and driving, and which, as soon as they get on the track of a roebuck, deer or hare, chase him, 'pif paf! pif paf!' all through the wood, and so disturbing the game. These beasts! (the noble name dog is too good for them) spoil the shooting grounds so much that I, for instance, have on my five different *reviers* (shooting grounds) not more than about seven or eight coveys of partridge, and altogether I have the hunting on over 46,000 Prussian *chargen*—deer, roebucks, and chamois are abundant, nevertheless. What they call here dachshunds are as far distant from a good dachshund as a donkey from a Gladiateur, or any pretty good thoroughbred horse. They are too large and high, show marks from all kinds of dogs, butcher-dogs, poodles, rat-catchers, etc., with which their mothers have been in love; do not go in the burrow of a fox (the only thing for which one ought to use a dachshund), have no obedience, and are only fit for disturbing the game, and making 'pif paf!' behind a roebuck, and to hunt him until he is almost dead."

In the London *Field* we find a long treatise on this dog, from which we quote the following:

This dog is generally considered in Germany to be a pure and independent breed, for a long time confined to the mountain chain and high forests of Southern and Central Europe, extending through Germany and into France, where he is probably the original of the *basset a jambes torses*. The old English turnspit some-

what resembled him, but differed in his ears, which were more terrier-like, and also in his nose, which had even less of the hound character than that of the dachshund.

During the last ten or fifteen years this breed has been largely imported into England for badger dogs, as well as for hare hunting. Opinions differ as to their merits in these capacities, some declaring that they are inferior to our own beagles and terriers; while others maintain that a good one will face any badger with as much pluck as our gamiest terrier. The balance of evidence in my possession is, however, strongly against this last opinion, and I think it may be alleged that any of our terriers will beat him in going to ground to fox or badger. As to nose, I am induced to believe that it is on the average better than that of our modern beagles.

Dr. L. J. Fitzinger, in his book on dogs, mentions twelve varieties of the dachshund, but it is generally believed that all but one of them are cross-bred. The one pure strain is that described by him as *der Krummebeinige*, or crooked-legged, which is known in this country as the dachshund, *par excellence*, and will be alluded to here only. This dog, in proportion to his height and weight, possesses great strength; but his muscular power can be better displayed in digging than in running, wherein his remarkably short and crooked forelegs render his gait ungainly and rolling to a degree amounting to the ridiculous, hence his use in Germany is to mark the badger or fox to his earth, for which also his keen nose is well suited, and as the entrance to the sleeping-chamber of the former is kept as small as is consistent with his size, the dachshund is able to dig away the earth so as to reach the exact spot, which his tongue at the same time serves to show his master, and thus enable him to dig down to it. The dachshund is also used for driving deer to the gun; but for this purpose the straight-legged cross *geradbeinige* dachshund is most in demand, which variety is generally also larger in size and more hound-like in character. In constitution the dog is hardy, but in temper somewhat wild and headstrong, so that he is often difficult to get under command when once on the scent. He is also snappish in kennel, and inclined to fight on the slightest provocation, or often without it. His tongue is loud and shrill, without the deep bell-note of the old-fashioned hound. The best breeds are met with in the vicinity of Scharzwald, Stuttgard, Lonberg, and Eberstein, near Baden-Baden. The points of the dachshund are as follows in numerical value and description:

1. The *skull*, value 10, is long and slightly arched, the occiput being wide, and its protuberance well developed; eyebrows raised, but without any marked "stop."

2. The *jaw*, v. 10, is long and tapering gradually from the eyes; but, nevertheless, it should not be "pig-jawed"—the end, though

narrow, being cut off square, with the teeth level and very strong.

3. The *ears, eyes* and *lips*, v. 10.—The *ears* are long enough to reach the tip of the nose when brought over the jaw without force. They are broad, rounded at the ends, and soft in "leather" and coat, hanging in graceful folds; but when excited, brought forward so as to lie close to the cheeks. *Eyes* rather small, piercing, and deeply set. In the black and tan variety they should be dark brown, or almost black; but in the red or chocolate, deep hazel. Dr. Fitzinger has often observed the two eyes vary in color, and even in size. The *lips* are short, but with some little flew towards the angles; not at all approaching, however, to that of the blood-hound. The skin is quite tight over the cheeks, and indeed over the whole head, showing no blood-hound wrinkle.

4. *Length of body*, v. 15.—In taking this into consideration the neck is included; this part, however, is somewhat short, thick, and rather throaty. The *chest* is long, round, and roomy, but not so as to be unwieldy. It gradually narrows toward the back ribs, which are rather short. The brisket should only be two and a half to three inches from the ground, and the breast bone should project considerably. The loin is elegantly arched, and the flanks drawn up so as to make the waist look slim, the dog measuring higher behind than before. The quarters are strong in muscle as well as the shoulders, the latter being especially powerful.

5. *Legs*, v. 15.—The *fore legs* should be very short, strong in bone, and well clothed with muscle. The elbows should not turn out or in, the latter being a great defect. The knees should be close together, never being more than two and a half inches apart, causing a considerable bend from the elbows inwards, so as to make the leg crooked, and then again turning outwards to the foot. In order that the brisket should approach the ground as above described, the fore legs must be very short. On the hind legs there is often a dew claw, but this is not essential either way.

6. The *feet*, v. 7½, should be of full size, but very strong and cat-like, with hard, horny soles to the pads. The fore feet are generally turned out, thus increasing the appearance of crookedness in the legs. This formation gives assistance to the outthrow of the earth in digging.

7. The *stern*, v. 10, is somewhat short and thick at the root, tapering gradually to the point, with a slight curve upwards, and clothed with hair of a moderate length on its under surface, when excited, as in hunting, it is carried in a hound-like attitude over the back. Its shape and carriage indicate high breeding and are valued accordingly.

8. The *coat*, v. 5, is short and smooth, but coarse in texture, and by no means silky, except on the ears, where it should be very soft and shiny.

9. The *color*, v. 9.—The best colors are red, and black and tan, which last should be deep and rich, and this variety should always have a black nose. The red strain may have flesh-colored nose, and some good judges in England maintain that it is indispensable, but in Germany it is not considered of any importance. In the black and tans, the tan should extend to the lips, cheeks, a spot over each eye, the belly and flank, underside of the tail, and a spot on each side of the breast bone; also to the lower part of both fore and hind legs and feet. Thumb marks and pencilling of the toes are not approved of in this country; but they are often met with in Germany. Whole chocolate dogs are often well bred, but they are not liked in England, even with tan markings, which are, however, an improvement. Whole blacks and whites are unknown out of Germany, where they are rare. In England white on toes or breast is objected to, but not in Germany.

10. *Size, symmetry and quality*, v. 10.—In *size* the dachshund should be in an average specimen from thirty-nine to forty-two inches long, from tip to tip, and in height ten to eleven inches at the shoulder; the weight should be from eleven to eighteen pounds, the bitches being considerably smaller than the dogs.

GREY-HOUNDS.

The grey-hound is the beau ideal of an animal formed for speed and endurance. There are several species. The English dog has long legs, with muscles like whip-cord which denote extreme length of stride, and rapidity of movement. His chief use is in coursing the hare, and in actual speed he far surpasses the hare; the latter, however, has the advantage of stopping short, and turning quickly, while the grey-hound, owing to his immense stride, which gives him excessive impetus, carries him far beyond his prey. Coursing, as practiced in England as an amusement, is of very ancient date. Two grey-hounds are sent after each hare, and matched against each other, for the purpose of trying their comparative strength and speed. Some hares are so crafty and agile, that they baffle the best hounds and get away fairly into covers from whence the grey-hound, working only by sight (he has no scent) is unable to drive them.

The coursing of the Western hare, or what is called the jackass rabbit, by grey-hounds, is fast becoming a favorite amusement with our army officers located at frontier posts, especially in Texas, where ground well adapted to the sport is convenient.

The Irish grey-hound is a remarkably fine animal, being four feet in length and stoutly built. His hair is of a pale fawn color, and much rougher than that of the smooth English grey-hound.

The Scotch grey-hound is still rougher in its coat than its Irish relative, but not so large a dog in make and is chiefly used in coursing the hare. There is only one breed of this animal.

The Persian grey-hound derives its origin from a source which is hidden in the mists of antiquity. It is chiefly used to cope with that swift and daring animal, the wild ass, the milder antelope, and the more dangerous wild-boars. This dog crossed with the Scotch deer-hound is used by many officers on our frontiers to run down the antelope and black-tailed deer, and where could there be a more magnificent coursing country than the vast plains of the West?

The Italian grey-hound is a little creature whose merit consists in its diminutive proportions, and slender limbs. It is useless for all purposes of sport.

Judging points of the grey-hound, as given in the *Fancier's Gazette:*

Head long and narrow; ears pendulous, or partly so, small, and fine in substance; eyes bright and full of fire; jaw long and muscular, lean in appearance, with a set of good teeth; neck long, muscular, with a slight inclination to arch, just sufficient to be perceptible to an observer of symmetry, which gives to the head and neck that graceful appearance hardly to be described. No throatiness or loose skin to appear; shoulders should be oblique, slanting back, with elbow straight from the shoulder; fore-arm straight and full of muscle; lower leg round and strong, with nice moderately round foot, slightly in-arched toes; chest deep, with a proportionate width; back broad, deeply ribbed; loin wide and full of muscle; hip full of muscle, and wide where loin and hip are set together, with enormous well developed stifles; well-bent strong hock; good round muscular lower leg, with good strong roundish feet; stern nicely set on, long and tapering, free from feathering; colors, many.

Head	15
Neck	10
Shoulders	15
Legs	10
Feet	10
Hind-quarters	15
Back	10
Loins	10
Tail	5
	—100

THE DEER-HOUND.

The deer-hound is a noble specimen of his race, his proportions being quite as good as those of the grey-hound, in which he resembles the rough variety of that beautiful dog. He is possessed of better powers of scent than the grey-hound, and in chasing game depends as much on his nose as on his eyes. It is curious that, although he makes use of his nose when running, he holds his head higher from the ground than the grey-hound, which only uses his eyes. The purity of the breed is judged a good deal by the coat, which should be very wiry, long, without being woolly. The old deer-hound is becoming scarcer every year, and a cross of the fox-hound with the deer-hound makes the most useful dog to hunt the stag. The object is to obtain a fine nose, so as to hunt a cold scent, but united with such speed that he may be able to keep the deer in sight. Judging points as given in *Fancier's Gazette:*

Head somewhat of the grey-hound shape, only more massive and muscular in all points, with a narrow, long, "tear-away" appearance; ears narrow, somewhat pendent—rather rat-like—not too long, and just sufficient leather in them to well cover the orifice; very prominent eye, looking sharp and far-seeing; jaw long and powerful, with a set of good teeth; no pendulous lip; neck long and muscular, free from throatiness, but set deep into chest; shoulders sloping, with a racing appearance; chest deep, with a fair and symmetrical width; back flat and wide, with good deep ribs; loins wide and muscular; hips powerful where set on to the loin, with very muscular stifles, well-bent hocks, and with a good substance from the hock to the foot; fore-legs must be strong, straight, and full of muscle, with a nice in-arched foot, slightly rounded; stern long, and tapered off to a point, nicely set into back; coat harsh and wiry.

POINTS IN JUDGING.

Head	15
Neck	10
Shoulders	15
Legs	10
Feet	15
Loin	10
Coat	10
Hind-quarters	15
	—100

THE BLOOD-HOUND.

Head large, slightly conical; forehead long, inclined to be narrow; eyes brown and sunk in the head, but expressive, showing

haw very plainly, which causes it to have an appearance of redness; the ears very long, well spread out, and nicely turned, and not puckered, fine in texture, in excitement they ought not to be carried up, but to hang tolerably near to the face; upper jaw and face inclined to be narrow; flews thin and pendulous, almost so that they could meet under the chin. The neck proportionately long; the skin on the throat loose, slightly wrinkly; shoulders powerful, not upright, but blades slightly slanting; what we mean is, not straight from the foot to front of shoulder; deep chest; fore-legs muscular and straight; feet round and cat-like; back not too long, thick, powerful and well ribbed up, short in loin; hind-quarters well set on, well furnished with good muscle; stifles not too long, but plenty of substance; stern set in level with the back-bone, pliant and tapering to the point, feathering or coarseness a great fault. Color reddish tan, darkening into black as it reaches the back. Some breeds show the body white flecked, which many old breeders very much admire. The coat should be short, glossy, and lie as close as a thoroughbred race-horse's; patches of white on chest or feet are objectionable; height in bitches twenty-seven inches, dogs twenty-nine inches, but two inches over those heights, if proportionate, would rather be an advantage. Judging is not tied only to these points, as there is a something in sight you cannot define, but can act on; but, as a whole, this we consider a pretty fair description of the main items of a good animal.

POINTS IN JUDGING.

Head	25
Neck	5
Shoulders	15
Legs	10
Feet	5
Back	10
Loins	15
Hind-quarters	10
Stern	5
	—100

THE OTTER-HOUND.

There is something so dignified and noble about an otter-hound, that if you once see a good one you will not soon forget him. They are large dogs, and very muscular, as they well need be, and good ones are rather scarce owing to various crosses. The head is very grand in shape, "something between a fox-hound and

blood-hound," but more hard. Ears long and sweeping, but not feathered down to the tips; eyes large, deeply set, and have a peculiarly thoughtful appearance, they show the "haw;" nose large and well developed; muzzle well covered with wiry feather; nostrils expanding; neck strong and muscular, but rather long; the flews are well developed; dew-lap also loose and in folds; chest, deep, and not too wide; back, strong, wide, and arched; shoulders ought to be sloping, but we seldom find them so; arms and thighs well developed as to muscle; stern like that of a rough Welsh harrier, and moderately well coated; coat, wiry-haired, hard, long and close at the roots; color, grey, or buff, or yellowish, or black, or rufous red, mixed with black and grey.

POINTS IN JUDGING.

Head	2
Neck	5
Legs	10
Feet	5
Shoulders	10
Back	10
Loin	10
Hind-quarters	15
Stern	5
Coat	5
	—100

THE BOAR-HOUND.

This strain of hound will be found useful in hunting wild pigs in Louisiana, and is derived from a mingling of the mastiff with the grey-hound, crossed afterwards with the largest sized English terrier. Our friends who own and breed dogs will at once see the necessity of using these three animals, in order to get at the best strain to hunt the wild boar or the less ferocious wild pig. The grey-hound element is required in order to give the dog sufficient speed for overtaking the boar, which is a much swifter animal than is generally supposed from his unwieldy piggy form. The mastiff is needed to give it the requisite muscular power and dimensions of body, and the terrier is introduced for the sake of obtaining a sensitive nose and a quick spirited action. To train this dog properly is a matter of some difficulty, because a mistake is generally fatal, and puts an end to further instruction by the death of the pupil. It is comparatively easy to train a pointer or setter, because if he fails through eagerness or slowness, the worst consequence is that the shooter loses his next shot or two, and the dog is easily corrected. But if a boar-hound rushes too eagerly at the bristly quarry, he will in all probability be laid bleeding

on the ground by a rapid stroke from the boar's tusks, and if he should hang back he would be just as likely to be struck by the infuriated beast. The limbs are long and exceedingly powerful, and the head possesses the square muzzle of the mastiff, together with the sharp and somewhat pert air of the terrier. It is a very large animal, measuring thirty inches to the shoulder. Wild boar hunting, next to lion and tiger shooting, is a dangerous sport, and the most destructive to hounds that the travelled sportsman will encounter. The boar is a most fierce and savage animal, and when irritated or disturbed by hounds will rush at any man or animal and attack them with his tusks. In fact, a boar has been known to turn with such terrific effect upon a pack containing fifty dogs, that only ten escaped scatheless, and six or seven were ripped up and killed on the spot. The speed of this beast is no less remarkable, as when fully aroused he puts the mettle of the swiftest and staunchest horse fairly to the test. Even on ground where the horse would have the advantage, he frequently gets away from the sportsman to regain his haunt, which is usually in a cane-brake. Another cross or breed of the boar-hound which would suit our southern friends (as thoroughbred mastiffs and terriers are a rarity), may be derived from the mingling of the Southern hound and grey-hound, which would answer every purpose for wild pig-shooting in Texas and Louisiana.

TERRIERS.

The Terrier, although not used to any great extent in the field as a sporting dog, is death on vermin, and being very intelligent, apt at learning, delicate of nose, and quick of eye and scent, will be found the best dog for raccoon hunting. There are several varieties of the Terrier—the English, the Bull, the Fox, the Scotch, the Skye, and the Dandie Diamont, so called, in honor of the character of that name in Walter Scott's "Guy Mannering." The English terrier possesses a smooth coat, a tapering muzzle, eye small and bright, and has a habitual custom of digging the ground with his fore feet and dragging away the stones and other substances in his mouth. The Scotch terrier is a quaint-looking animal broken or wire-haired, always ready for work or play, good to hunt

rats, and in fact will dig a fox out of his hole when he fancies himself in safety. The color of the Scotch terrier is generally the same as that of the English dog, he has so long been kept as a pet that unless a pure breed is obtained from his native country, he will be found valueless as a sporting dog. All these dogs would be of the greatest value for successful raccoon hunting.

KANGAROO DOG.

This dog, which is much used in Australia for hunting the kangaroo, is a cross of the grey-hound and blood-hound, stands thirty-four inches, and from tip of nose to stern post, fifty-four inches. In form he resembles the grey-hound, but in muscle and power is equal to half a dozen. His limbs are symmetrical—a mass of muscles—ears small and pointed; nose long; mouth deep; eyes large, lustrous, and soft as a woman's; color, a decided brindle, with bars of black across his back and loins; weight, eighty-five pounds. In body and limbs he seems all muscle, lithe, wiry, and as elastic as rubber. In disposition, as affectionate as a setter, playful and good natured.

They are tremendous leapers, as well as runners, and have been known to clear a twelve foot fence with apparent ease at a jump. They are fine deer dogs as well. A pair is worth $600.

COLLEYS.

Although the colleys are not sporting dogs, they have sense enough to be taught anything, and ought to be cultivated, especially with the rapid growth of sheep raising in this country, more particularly in Colorado, California, and New Mexico. In Great Britain regular field trials are held in which the shepherd's friend and assistant displays the most wonderful intelligence in penning and driving sheep, and by the publicity of their trials and the prizes awarded, great encouragement is given to breeding and training. An Englishman, Mr. W. Fothergill, has lately published a little book of twenty pages on the management and training of colleys, which gives some useful hints. The first lesson, he says, is to teach the whelp to lie down at command; then come this way or that, always behind you. In a short time he will leap

over a hedge at your bidding, stand still at command, or even walk backwards or forwards as you wish. All this may be done before even it sees a sheep, and indeed many whelps have been thoroughly trained before they have been called upon to work. The more general practice, however, is to take the young dog alone, when quite strong enough to keep a few sheep up in the corner of a field, and teach him to bring them after you short distances, and so make him handy at working to the right or left. He should never be allowed to run between his trainer and the sheep, for the great object ought to be to throw the dog well off so that he may run wide. There is a great boldness or dash in a colley so taught, and he does not harass the sheep nearly so much as one in the habit of running at or close after them. You may teach him to obey signs, or words, or a whistle, and for far distances on the mountain the last is best. A dog so taught will gather miles of mountain, bringing all the sheep to the shepherd's feet, and then by an alteration in the note will take them right back again. It should always be borne in mind that the sagacity, or sense if you will, of the colley develops with his years; and therefore, if you are quiet and patient, and have plenty of work for him, he will teach himself rapidly without your worrying yourself very much about him. It would be hard indeed for an intelligent man who has been working steadily upon the mountain with sheep dogs for a whole season, and witnessed day by day their shrewd cleverness, to declare that they do not reason.

In this country in the States and Territory we have mentioned, the colley has another duty to perform. He is not only guide and herdsman, but protector as well; for the sneaking coyote is to be kept away, and if need be, fought; and sometimes a hungry bear with a taste for mutton, as well.

The *Fancier's Gazette* gives the judging points of the colley as follows:

The head has a great resemblance to a wolf's—being rather conical, and going off gradually sharp to the nose, with a long jaw—only longer, and with a more foxy and intelligent look and wider and longer ears, which are a little feathered and pendent; eyes have a sort of flashing and "miss-nothing" look, always on the alert; jaw long; nose sharp; neck long, and well furnished with

apron and ruffle; shoulders fine and deep; chest well let down; legs straight and full of muscle, with cat-like feet. A good broad back and thick over the loins, with well-bent hocks; stifles well developed; tail feathered, not carried over the back; coat long and straight, wiry to the touch, with a pily coat underneath the "over-coat." Color various; but that most in vogue, black-and-tan, the tan to be pale, not rich. This is the present fashionable show-dog.

POINTS IN JUDGING.

Head	25
Neck	5
Shoulder	10
Chest	10
Back	10
Loins	10
Coat	15
Legs	
Feet	
Stern	
	—100

THE CARE, TRAINING AND MANAGEMENT OF DOGS.

AS the taste for field sports increases, we hear from every quarter the inquiry: "How shall I obtain a good dog?" This is a question that must be answered largely by the common sense of the propounder. While believing that every one in need of an animal should take the same pains to inform himself as to the characteristics and points of the race, in the same manner as he would if a horse were desired, we are aware that many have not the time, or lack the inclination for such study. Such we would advise to put themselves in communication with some dealer of known character and reliability, with the determination to abide by the result. Some men never are, and never can be satisfied; for the reason that few have the honesty to acknowledge that they do not know how to break or handle a dog, and such usually ruin the animals that they purchase. Hence from overweening self-sufficiency and superficial information on the one hand, opposed to practical knowledge on the other, arise most of the difficulties between the purchaser and the dealer. We are convinced that if the most skilful of breakers should sell twenty of the best dogs ever whelped to the same number of purchasers, allowing them the privilege of trying them and then returning if they failed to suit, at least one-half the animals would be thrown back upon the breaker's hands, and he himself slandered. And this difficulty will continue, for the reason that almost every man who shoots well believes that he must necessarily be fully competent to undertake the management of dogs. To be able to shoot well is to be desired; though there is no great difficulty in acquiring the art; there are plenty of men with but a mere modicum of intellect who are proficients; but to be able to handle a dog skilfully is a very rare and much to be desired accomplishment—one well worthy the close attention of every sportsman, particularly if compelled to

purchase dogs broken by other hands. A skilful handler has no difficulty in purchasing a good animal, because he knows what to expect from a strange dog, and how to work to gain his confidence; on the other hand, there are many purchasers who never give an animal a chance to show his education, and saddle their own ignorance upon the dog and his breaker.

While it is frequently argued that each one should break his own dog, and while allowing that there is much to be said in favor of so doing: it can not be denied that the number of those who are capable of the complete self-government necessary to the successful education of the animal is extremely limited. As proof of this, look at the numbers of children, and the training *they* receive! If we cannot successfully control *them*, how much less can we hope to succeed with an animal to whom speech is denied, and in which the power of understanding is but limited.

It is not within our province to point out the choice of breeds, distinctions of color, etc.; these being matters in which the purchaser must please himself. But a few hints of a general character may not be amiss.

CHOOSING A DOG.

First satisfy yourself as to the antecedents of the animal in question. Purchase no dog whose pedigree is entirely unknown, at the same time avoiding all suspicious taint whether of form, character, or disease. See him in the field (if broken,) and under the gun; note well his mode of ranging, and that he does not rake. See that he possesses a good nose, is staunch on point and charge, heels properly, is not gun shy, is a tender-mouthed retriever, and quick to respond to command. Study his trainer's mode of delivering his commands, and if he be a foul-mouthed, loud shouting individual, shun both him and his dogs; for you may be assured that he who uses expletives in abundance, and bellows at his dogs at the top of his voice, is not possessed of the temperament requisite for their proper training. Even if they appear well broken, it is not seemly to purchase animals, in the working of which it becomes necessary to transform yourself into an animated fog-horn, alarming both the neighborhood and the

game. Better than all is the dog who works by the silent method, obeying the movements of the hand.

Not only see the dog in the field, and note the breaker's method of working, but try your hand under his supervision. Nothing is more detrimental than to attempt to work a dog whose ways you do not know, and who likewise does not understand yours; the result is always disastrous; you lose yourself, command of the animal, and the animal his respect for you, and in sheer self-defence he becomes sulky; the crack of the whip with an accompaniment of oaths does not mend the matter, but probably irretrievably ruins the animal.

Having satisfied yourself as to physical attributes, and obtained your dog, do not at once turn him over to another to feed and care for, but let this duty devolve upon yourself alone. When a dog changes masters, he will attach himself to the first person who treats him kindly; consequently it is important that you be the one to whom the affections of the animal are transferred. Take full charge of him then, and feed with your own hand, until he has learned to know your person, your voice, and to look with pleasure for your coming. As soon as safe, let him loose from the chain, take him to walk, and attempt to gain his confidence by gentle coercion and kindness, showing him meantime that you are his master, and that he must obey. A few days' attention, with the exercise of reasonable skill and patience, will accomplish all this, when he may be taken to the field.

Let it be remembered, that no dog can be so perfectly broken, that when he goes into the hands of a stranger he will at once work and obey him with the same readiness that he exhibited towards his former breaker and master. Also take him out *alone*, as no dog will or can work well in a new place and among strangers; to demand such, would be to ask more of the animal than could be expected of yourself. Working a dog alone for a single day, or even half a day, will have the effect to start him aright, and save trouble and vexation afterwards. You may have to use the whip, but in such a case apply it judiciously, without anger, pointing out to the animal his fault. By no means lose your self-control, for the result will inevitably be disastrous both to the animal and yourself.

As before, if gentlemen who purchase broken dogs to shoot over could be impressed with the necessity of exercising good judgment in their management, there would be no difficulty in purchasing good, staunch, well broken dogs. In consequence of mismanagement, many breakers will not sell a dog to any one, unless they know to a certainty that the purchasers possess skill, and will exercise it. One trainer utterly refuses to break dogs for strangers at any price, for fear the animals will pass into the hands of bunglers, and thus be condemned.

THE KENNEL.

It is important that your animal be provided with a proper habitation. It is true a dog can be kept in a barn or stable, but those who keep them there can best inform you whether their dogs are capable of answering the purposes designated. The sense of smell is acute in the dog, and as every odor that salutes the nostrils owes its flavor to the mote-like particles held in suspension in the air coming in contact with the sensitive membrane with which the olfactories are lined, we cannot but suppose that the stench of the effete material, decaying vegetable matter, and ammoniacal gases, which constantly originate in and around such buildings, are more or less detrimental to the nose of the animal.

"The merciful man is merciful to his beast." Exercise that mercy, and build your dog a house in the open air, away from the barnyard, and so far distant from other buildings that they may not interfere with either the sunlight, or circulation of pure fresh air. Give him a large yard to run in, and plenty of grass under foot; above all see that quitch or dog-grass (*Triticum répens*), is planted therein, for it will not only be eagerly sought and eaten by the animal, but goes far towards preserving his health. If more than one dog is kept, a building of two rooms may be erected, each opening into separate yards, that one may be occupied while the other is cleaned, or for convenience of separating the sexes. Doors and windows are essential to admit of free entrance; and a free circulation of air. The bench on which they lie should be fronted that the dogs may not crawl underneath, and provided with plenty of bedding in the shape of straw, shavings or beach

sand ; if none of these are available, spruce cuttings may be substituted with advantage. An excellent plan is to have the bench movable on rollers, that it may be trundled about freely, and even run out doors. Let the bedding be shaken up and aired in the sun each day, and at least once a week replaced by fresh material, the benches and room having first undergone a thorough scrubbing. The yards also should be cleaned and raked frequently, every attention being paid to neatness and cleanliness, as dogs are liable to many diseases to which poverty and nastiness will very much contribute. Turpentine or strong whitewash will be found to aid in the prevention, or eradication of vermin. If the floor be of wood, see that it is thoroughly wiped and dried after cleaning, and before the dogs are allowed to enter the house, as damp is prejudicial to canine health.

House your dogs every night, but turn them out on going to feed them in the morning. At such times a little attention to their coats will not be amiss, such as combing and brushing ; when the hide is very greasy, a little chalk rubbed in before brushing is advantageous. Water should be supplied in abundance, that the animals may drink when thirsty. If a pure stream be led through the yard, all the better ; but if this be impossible, supply them freely with queensware drinking pans, which must be kept in the shade, and emptied and replenished twice each day, being thoroughly washed at each alternate refilling. If a piece of roll brimstone is kept in the water pan, it will aid materially in keeping the dogs in condition. Iron dishes, even when porcelain lined, are not to be used, the metal itself oxidizing, and its porcelain lining containing lead and arsenic in dangerous quantities.

If but one animal is possessed, a small dog house will suffice ; but let the roof be not only water tight, but see that it projects sufficiently beyond the ends and sides to protect them from the driving rain. The top may be made movable for convenience in shaking up the bedding, and sunning and airing the interior. The house should moreover be raised sufficiently to avoid the dampness of the ground underneath, and provided with a door hung from above in such a manner as to easily swing in or out. Avoid the general fault of too small a kennel, many of them not allowing sufficient room for the occupant to turn round comfortably, and

see that no projecting and unclinched nails remain which may injure the eyes.

The Toronto (Canada) Hunt Club has a model kennel house, a very pretty gothic lodge for the huntsmen and spacious kennels for the pack. A house for cooking the canine diet, a stable for one or two horses and a large rangy shed for the horses of members of the club, the whole enclosed with a close eight-foot fence.

FEEDING.

In feeding, an anatomical and physiological view cannot fail to be a safe index to the system to be pursued. By these aids we are led to conclude that dogs are not wholly carnivorous, but are so formed as to derive nutriment from either vegetable or animal matter. We see them voluntarily seeking vegetable substances at certain seasons, which they devour with avidity; probably as a necessary corrective of the tendency to putridity which a diet entirely confined to animal food begets.

Carrion is to be avoided, it being universally admitted that it works to the injury of the animal's sense of smell; at all events it tends to give an unhealthy and disagreeable odor to the animal. Healthy animal food when properly administered, forms the most nutritious of diets, and is better adapted for sustaining the sporting powers of dogs than any other. Sprat's biscuits are for this reason highly recommended; but we would suggest they be frequently broken up and made into broth instead of feeding them continuously in a dry state. Barley and oat meals, the dross of wheat flour, or any mixture of these same, with broth or skimmed milk, is very proper food, varying it twice or thrice a week with greaves, from which the tallow has been pressed, mixed with flour; or sheep's feet and heads, well baked, or boiled, form a very good diet. Good scraps from the table undoubtedly answer as well; the greatest objection to their use being the natural tendency to dispose of all such at once, without reference to quantity, by giving to the dog, whereby he becomes over-fed.

Puppies demand more food in proportion than adult dogs; and there is also greater danger of surfeiting with certain foods. Never allow your dogs to loaf around the kitchen; in spite of all you may say or do, servants cannot, and will not, resist the beseeching and

wise loving looks of the animals, and will surreptitiously supply them with food.

Bones are not to be withheld, except such as are so small as to be swallowed; they contain phosphate of lime which is essential to the proper nourishment, especially of young dogs, and likewise answer all the sanitary purposes of a tooth brush.

Feed your dogs but once, or at most twice each day, selecting the same hours for each meal, and observe punctuality so far as lies in your power. Your temper is not sweetened by your meals being delayed: do not ask more of your dogs than of yourself. In the hunting season, feed the evening before, giving nothing the morning you take them out except it be a little milk. In the middle of the day when resting for your own refreshment, remember him who has worked so faithfully for you. A few of Sprat's biscuit may be carried for the purpose in your pocket; though if at a farm house, a little bread and milk will be more wholesome. When the day's labor is over, a full meal of the biscuit or meal and scraps may be allowed.

Avoid Indian meal, very salt food and raw meat, as tending to vitiate the secretions; not but that a little raw meat may be good; but it is to be avoided as a steady article of diet. A judicious mixture of green vegetable food, boiled, and even raw potatoes (where the animal will eat them) will be found advantageous to the well-keeping of dogs.

FEEDING PUPPIES.

No animal can be expected to attain its full size and form except it receive a full supply of wholesome food. Only those breeders who have given the matter close attention can realize how much a healthy growing puppy will consume, consequently very many young animals are injured through want of sufficient and proper nourishment.

Some bitches will supply nourishment for nine or ten puppies until they are four or five weeks old. Others have but a small secretion of milk, and can sustain no more than four or five, but for a short time; hence it is necessary to watch closely to know what the bitch is doing for her progeny, and supply any deficiency accordingly. Even when the maternal supply is ample to keep the

offspring in good condition, it is decidedly better to commence feeding the litter with other food when they are four or five weeks old, in order to avoid too sudden change of diet when they are taken from the mother. About the best food at such time, is good sweet cow's milk with the addition of a little scalding hot water, to which may be added after a few days, well-cooked corn or oat meal, the latter being preferable. When seven or eight weeks of age, give them beef or mutton soup with mush and milk; substituting in turn wholly or in part, scraps from the table as this age is doubled. Meat, bones, bread, vegetables, gravy, etc., form an excellent diet for growing puppies of this age, as well as for adult animals, when given in quantities sufficient to keep them in proper condition. One of the most important matters in the rearing of young animals is, that they be kept in proper form, consequently they should be *frequently* fed, and receive as much food as they will eat cleanly. If feeding is allowed but twice a day, they become almost famished, and eat so ravenously when supplied as to become "potbellied," and misshapen, and frequently out of health; consequently from the time they are weaned until they are two or three months old, they should be supplied with food at least five times per day, the two extreme meals being given at corresponding early and late hours of the day. After three months thrice daily will be found sufficient.

In regard to the rearing of pups solely upon animal food, we may say, that so far as personal experimental knowledge reveals, it is by no means the proper course to pursue. Youngsters thus fed will, if not overtaken by disease, grow to an unreasonable and undesirable size, and having become habituated to meat only, it will be found difficult to induce them to accept of sufficient vegetable food to keep them in anything like proper condition for work. Besides they are more apt to maul or mouth the game they retrieve. All growing pups and adult hunting dogs require more or less meat with their food, but in the case of the former, it is better for the animals, if it be in the form of broth mixed with their mush.

AGE.

To tell the age of a dog approximately, examine the upper front teeth. Until eighteen months old, these are rounded on the edge;

at the end of two years they begin to square off, and gradually wear down and shorten, until, when the animal has entered the sixth year they are nearly even with the gums. The lower teeth usually wear out earlier. The appearance of the eye is also an indication of age, and all dark-colored dogs show their years by the growth of white hairs about the muzzle.

MUZZLING DOGS.

The muzzle is an instrument properly belonging to the Dark Ages, and should be classed with the vise, thumbscrew, and rack. It is as likely to force an attack of rabies in the wearer as to answer any sanitary purpose, and incalculably injures the animal, preventing free respiration, and denying to him the privilege of drinking at that season of the year when water is most sought and needed. For four years the writer has collected statistics of the cases of rabies reported through the papers and medical journals, which show that at least three out of every five cases that have occurred during that time occurred in the months of December, January and February, and *not a single authenticated case* has occurred in the months of July and August. Two in August, first designated as hydrophobia, but later proven to be hysteria, are reported. September shows three cases of doubtful character, one of which is traceable only to a cut, probably developing tetanus, simulating hydrophobia; of another no definite information could be obtained; and the third had been bitten fifteen months previously. With this result before us, we can but consider the muzzle as a mechanical contrivance desirable for vicious dogs, or useful only to prevent dogs from eating or destroying articles with which they may be placed in contact, and to be used at no other time. It also proves to be an excellent shuttle-cock for the Solons who constitute the law-givers of our cities.

DOCKING TAIL.

There is a great diversity of opinion among sportsmen and breeders in regard to the docking of dogs' tails. Many consider it altogether wrong to alter the caudal appendage in any respect, and in England such are excluded from all bench shows. Idstone

suggests that those sportsmen who desire short tailed animals, had best breed them from short tailed sires, and stigmatizes the act of docking as a piece of cruelty. Such is undoubtedly true in part, but there is nothing, in our opinion, that detracts so much from the beauty of a setter or pointer as a very long crooked tail. If we could not have a *good* dog without such a deformity, we would, of course, endure it. But there is a remedy for it, and consequently we resort to it when we can, and by docking improve the appearance of the dog; neither need it be an act of cruelty, if skilfully and properly performed. How often do we meet with pointers who have the skin whipped off from their very long tails, for two or three inches! To work a dog thus is not only cruelty, but the animal, being in constant pain, does not work nearly so well as he would with a good sound tail of proper dimensions. Therefore, it is better to take off a small piece of the tail of most pointer pups, unless the appendage appears of the proper length. If this is done when the pup is but three or four weeks old, he will not show a docked tail when he arrives at adult age. Some setters, too, have tails entirely out of keeping in length; and what can be more currish in appearance than a very long tail turned up over the stern, or as is sometimes the case, turned to one side or the other? Most sportsmen would consider the animal improved if he were tailless.

The operation is simple, consisting merely of laying the tail on a block, and turning back the hair at the point where it is desired to be shortened, and with a chisel cutting it off between the joints. The bleeding usually ceases of itself in due time, but if not, the application of a little muriate tincture of iron, or the persulphate (Monsel's salt), will control it. If the operation be skilfully performed no deformity will result, the hair falling over the end and hiding the alteration. As may be surmised, it is better to wait until the setter is full grown before docking, otherwise you are as likely to detract as to add to his appearance. Many animals, both setters and pointers, have been marred by unskilful docking, hence the operation should never be attempted except by those who are skilled in its performance.

A good rule to follow, to get the tail in proportion to the length of the dog's back, is to stand the dog square upon his legs, take

the tail, and measure down to the hock, and remove all over and above what will reach to the middle of the joint of the hock.

SPAYING.

The question is frequently propounded : "Does the operation of spaying impair the usefulness of a bitch ?"

If the operation is performed at an adult age, it usually enervates the animal, when of course their usefulness is impaired. But if the animal is spayed while still in puppy-hood—the sooner after it is four weeks old the better—no harm results, and such is a very desirable animal to possess, except when one is required for stock purposes.

The operation is performed in two ways. In both an opening in the flank is made ; and in one the uterus and appendages are removed entire ; in the other the ovaries alone are extirpated. This should never be undertaken but by a skilful operator, one well acquainted with the anatomy of the animal. It is at best an uncertain operation in its results, so far as the life of the animal is concerned ; though the fatality is less than would be supposed by any one acquainted with the anatomical situation and relation of the organs removed.

BREAKING DOGS.

All that is really necessary in the breaking of dogs, is a thorough knowledge of what constitutes a good dog and the manner in which it should work in the field, added to such judgment as will enable a man to determine between the different dispositions and characters he has to encounter. Few can be handled precisely alike ; some are timid and need encouragement, others are headstrong and demand strict, and at times, even severe treatment. An absolute command of temper must be observed by the instructor during his teachings so that not an unnecessary blow may be given ; for work done cheerfully and with a desire to serve and benefit the master, is one hundred fold better than service performed grudgingly or only through compulsion.

A puppy should have but one teacher, no matter how close the methods of two trainers may agree ; he must learn your voice, *your manner, your very look ;* therefore, if you determine to break

your dog, do it entirely yourself; do not break down in the midst of your labor and leave it to be finished by another; the result will never be favorable.

From the beginning attend to the feeding of your youngster yourself, and if possible, let all food be taken from your hands. This is advised that the puppy may the sooner attach himself to you alone and look upon you as his master, for no dog, either setter or pointer should ever be loaned, or hunted by others than his trainer; therefore the breaking of all field dogs is better done by the sportsman himself, provided he possesses the requisite patience, and can devote to it the necessary time.

The check cord will be found of far greater assistance than the whip, the most unruly and headstrong animals being readily brought under subjection by it, while at the same time it can be so applied as not to intimidate. Always bear in mind that a dog should not be corrected, except it is certain he understands the fault for which he is rated. Punishment becomes absolutely necessary at times with some dispositions, and that too of the most severe character; but you must be satisfied that the act which demands it was committed with full consciousness of its wrong. Where you see a dog responding to command in a cringing and supplicating manner, you may know that his master possesses an ungovernable temper, unfitting him for training or managing any animal possessing consciousness. Such a dog has been unmercifully flogged, perhaps kicked, before he has been taught and made to understand his line of duty, and fearful of a repetition of the lash, for what he knows not, obeys the summons crouching and creeping, an object of sympathy to the beholder, while his master is viewed with disgust.

From the moment you come into possession of your puppy, say at three or four months of age, lessons of obedience may be given at feeding time, before you undertake the more difficult part of yard or in-door breaking; in fact, whenever you may choose to offer him food, by placing it before him and not allowing it to be touched until ordered, slightly tapping him when greediness or a non-regard of your command is observed, persisting until you feel he understands nothing can be gained by disobedience.

The first important lesson to be given is that the puppy shall

charge or drop at command, retaining this position until permitted to rise by the order "hold up." Very few dogs in this country are trained to absolutely go down at the report of the gun, or as it is called, drop to shot; most sportsmen are satisfied if their dogs do not break shot, and rush for the game the moment it is killed, and charge at the word, remaining until commanded to fetch, or keep the upright position until the gun is reloaded and they are ordered to move on again.

Notwithstanding so few dogs are broken to drop to shot with us, it should be done in every instance, as it undoubtedly tends to give steadiness in every active point, and acts as a check on any desire the animal may have to break in and mouth game when fallen; for, in the excitement of the moment, the sportsman may neglect to give the order to drop or charge when he has brought down his bird, and the dog being left to act as he chooses, naturally moves toward it also, which, if too often repeated, will certainly unsteady him; hence the necessity of teaching to drop to shot, which, with very little trouble, may be accomplished by the following method:

Fasten to your dog's collar a strong cord thirty or forty feet long, and take him into a yard or lot where no one will be present; secure the loose end to a short stake firmly driven in the ground; place him in a crouching position in front of you and keep him there, meantime exclaiming, "down!" or "charge!" The moment you remove your hand, he will, of course, attempt to rise, but foil him immediately with a sharp jerk of the cord, and an imperative "charge!" until he obeys, after which encourage and caress, allowing him to rise, using the words "hold up!" You may now make use of the cord in a more forcible manner, as a reminder that your command must be obeyed. Take the dog to the stake and make him charge there, not allowing him to move while you slowly walk from him. Go a few steps beyond the distance to which the rope will allow him to come, and tell him to hold up. He will naturally run towards you, when, just as he reaches the end of his tether and receives the jerk, cry "charge." This teaches quick and prompt obedience to the order.

It is time now, supposing that you have thoroughly inculcated this lesson, to have the dog learn that the holding of the hand aloft

is equivalent to the verbal order to drop, and from the start it would be decidedly better to always uplift the hand when the command is given, practicing him until the signal only is required to cause him to charge promptly.

In the same manner can dropping to shot be taught by firing off a pistol and instantly jerking the cord and saying "charge;" but it is best to commence with the cap only, advancing to very small loads, and gradually increasing to full charges. The dog must fully understand—to be perfectly broken in this particular—that the uplifted hand means he should charge, no matter how far he may be from you in the field; and likewise that the report of the gun has a similar signification.

In these lessons patience must be studied, and the dog forcibly impressed with the necessity of obedience, without being cruelly treated; on the contrary, praise and caress him when he does well, but then only.

BACKING.

In order the more readily to teach your pupil to back another's point when in the field and hunting, he should understand that "Toho" is the command to stop or halt; this is taught him after he has become prompt in charging, using the check cord as in the first lessons. Provide yourself with some morsels of food; take the dog when hungry (having fastened the cord to his collar as before), into an apartment or yard where there is nothing to distract his attention, and throw a portion of food where he can see it fall. He will naturally run for it; as he does so, and when on the point of seizing it pull the cord sharply and cry out "*Toho!*" He will probably drop or charge, remembering the lesson you first taught him. This is what is desired, so long as he stops. Continue this until the cord is no longer required, and he will halt at the verbal command, at the same time keeping him perfectly familiar with the down charge by signal, and dropping to shot as well, if you have determined to, and have already begun to teach it.

In order to encourage a young dog to quick movement, and to cultivate in him a free and speedy gait, take him with you in your walks as often as possible, extending your rambles to the suburbs where there are open fields and plenty of room. For a time keep

the cord attached to his collar, allowing it to trail after him as he moves about; it will impede him but little, especially if you select a strong one, about the diameter of an ordinary lead pencil, and point the end with thread to keep it from fraying. You will find it will greatly add to the control you may have to exercise over him, and have the effect of impressing him while at liberty, that you are still master. During these walks, accustom the animal to the sound of the whistle, summoning him from time to time that he may become perfectly familiar with it. Practice him, while you are out, in the same lessons you began at home, until each and every one is obeyed promptly; when at the down charge walk away from him, each time extending the distance, meantime, insisting that this posture be retained until ordered to hold up.

No doubt he will notice, and perhaps show an eagerness to hunt sparrows and other small birds you may meet in your walks, and his natural instinct will probably lead him to point, when he scents them. This need not be checked, but rather encouraged for a short time, as it will give a greater desire for the chase, and when his education is sufficiently complete to work him on game, and it is once shown, he will readily distinguish between the two, and choose the latter.

These walks should be more frequent as the shooting season approaches, when you will desire to enter the field, to confirm and put to practical use the lessons taught.

On taking the field with the beginner, it is desirable for the first day or two, that you have the companionship of a fellow sportsman with a thoroughly broken and experienced animal. Attach the cord as before to the collar of the youngster, allowing it to trail after him. He will naturally watch the movements of the old dog, and when the game is scented will be eager, and perhaps headstrong. When the old dog draws on the birds and points, the youngster may of his own accord back at once; if he does not, endeavor to be near enough to have command of the cord, and check him with a sharp jerk and an emphatic "to ho!" holding him firmly. Have your companion flush the birds, and as they rise at the report of the gun, check him down smartly, saying *charge!* and see that he obeys. If the bird is killed, and the youngster has previously been taught to retrieve in-doors, com-

mand him to fetch, after *insisting* upon his keeping the down charge for a sufficient time to entail steadiness. He may not be successful in finding the bird for a time, when you may assist him, repeating occasionally the word "fetch." If you are the first to discover it, call him and have him lift it from the ground, when, as you remove it from his mouth, reward him with notice and a caress. By repeating this method a few times, you gradually and surely impress upon the youngster the utility of that which was taught him before entering the field.

During the day, you will no doubt have many opportunities of confirming the puppy in the backing of another dog, using "*toho*" always as the command to stop, punishing with the cord for disobedience and non-observance of the order. The young animal that has the example set him of ranging, is wonderfully improved in speed thereby, but it must be remembered that puppies are frequently ruined by working them too freely with old dogs. They soon discover that the oldster understands fully how to find the game, and instead of finding, they are content to watch and back the older. Great care must be taken that your animal does not fall into such a habit. As soon as a young dog begins to watch the older, depending upon him to find the birds, he should be at once withdrawn and worked entirely alone until habits of self-reliance are fully imbued, and he depends upon his own individual efforts in the search for game; when this object has been fully attained, he may again be worked in company with older and well broken animals in order to confirm him in the habit of backing.

At different times while ranging in the field move in the direction you wish your puppy to take, waving your hand toward it also; then suddenly taking an opposite course, wave that way also. In this manner you can soon teach that he must go to whichever portion of the field you desire, by the motion of the hand.

Quail are undoubtedly the best birds on which to break a young dog, and you cannot be too particular, the first season, in demanding absolute obedience. Allow the least infraction of the necessary rules, and he will always be on the look-out for an opportunity to exercise his own will. Never allow him to flush for you, even once, as the habit will grow upon him, and he will repeat it with every opportunity that offers when out from under your eye.

RETRIEVING.

One of the most important items that demand the consideration of those who raise and break dogs to shoot over is that they are properly taught to retrieve. There is nothing more vexatious while shooting than when, having made a good clear shot, you discover your bird has fallen across a stream, a deep muddy ditch, or in some dense briery covert from whence if your dog does not retrieve it, you are obliged to turn your back upon, and leave it, and this must frequently happen with those who shoot over dogs not broken to this accomplishment. Who would not rather miss a half dozen shots than leave a dead bird? For this reason, if none other, invariably make it a point to have your dogs thoroughly broken in the art of retrieving.

A few years since, the idea was generally entertained at home, as it is now abroad, that a pointer or setter broken to retrieve could not be well controlled, and that through the holding of birds in the mouth, immediate injury resulted, by blunting their powers of scent. This doctrine is not only erroneous, but absolutely silly, and to-day, many of the best sportsmen of Great Britain and Ireland have abandoned the views which have been so widely disseminated and thoroughly inculcated, and are having their young dogs broken to retrieve. A friend in Scotland writes; "Having tried your Yankee plan, I am delighted with it. I find the setter when perfectly broken, is as good a retriever as any in the world. He is by far the most useful dog, and I now consider that for him to be a retriever is a *sine qua non*. What we have so long seen to admire in the big heavy looking dog we call a retriever, I do not know. I am satisfied that any pointer and setter, who possesses industry, perseverance, courage and activity, is particularly suited for retrieving purposes; in fact if he is good for anything, he may be taught to retrieve not only without detriment to any of his good qualities, but to their positive advantage. We have not tried the Irish breed yet, but are having a puppy broken. We fear for him because he is too impulsive. He is Irish all over and if he had a coat, he would always be wanting some one to tread on the tail of it. When game is in view he is positively

irrepressible, and is inclined too to hunt by the eye rather than the nose."

There are two modes of breaking a dog to retrieve, one of which is to take a puppy of five or six months of age in a room or yard where escape is impossible, and by rolling a ball or some such object from him, he will soon become fond of running after it, and will pounce upon it, bringing it back when called. After he does this well the wing of a bird should be attached to the ball, when after a few lessons, he will as readily bring a bird when thrown for him. Almost any one with a little skill and patience can in this way inculcate in his puppy a fondness for retrieving. This is known as "teaching a dog to retrieve in *play*," but by many is not considered the best method, for the reason that if the animal thus broken should mouth a bird, and not fetch properly, and be punished for the fault, the chances are, that he would thenceforth cease to retrieve altogether. The other method is to break the animal under compulsion, which is to first let him know what is required in the matter, and then to *make* him do it. It is better perhaps, before a dog is thus broken to retrieve, that he be partially or fully field broken, and that he be not less than eight or ten months old when taken in hand. The very first thing, if he has a propensity to rush in, pounce upon, and bring in things voluntarily, is to break up all such nonsense at once, giving him to understand that there is to be no play in the matter, but *business* from the very start; and before giving him the first lesson a good strong check-cord and force collar should be provided, for the lesson will be a disagreeable one, and much care must be exercised that the dog does not escape from it: should he escape once, irretrievable harm is done, as he will ever after be on the lookout for an opportunity to avoid instead of heeding, your instruction.

In breaking a dog to retrieve, nothing answers the purpose better than a corn cob, or a newspaper compactly wrapped with twine, and he is first to be taught to sit down, hold up the head, and take the object from the hand. In order to do this, his mouth must be opened and the cob inserted as the bit is placed in the mouth of a horse, at the same time commanding him to "*take it*." If he is stubborn and refuses, twitch him with the check-cord, or rub his gums with it until he is forced to open his mouth, and takes

it, and will hold until he is ordered to "*let go.*" When this lesson is fairly learned, compel him to walk around the room with it in his mouth. The chances are that he will drop it with the first move, and if so, box his ears, replace the cob, and force him to walk round with it until he is ordered to "let go." There is very little trouble in teaching any dog to do this, the greatest difficulty being to make him pick up from the floor, which should not be attempted until he is thoroughly confirmed in the above. Then the cob must be held a few inches below his mouth, and he be made to take it, which being done, it may be held a few inches lower, gradually dropping it nearer and nearer the ground until the object is taken from the hand while resting upon the ground; when by the exercise of a little force he will pick it up when ordered. After he has been thoroughly educated, the object may be thrown to increasing distances, and the animal will thus be taught to "*go fetch*" "*come in,*" "*sit down,*" and "*hold it,*" until he is ordered to "*let go.*" When proficient in all this, then, and then only may he be taken to the field, where having been brought to a "down charge," his eyes are covered with the hand, and the cob is thrown that he will be compelled to find it with his nose, when he is ordered to "*fetch it.*" It frequently happens after a dog has been perfectly broken to retrieve a cob, ball, package, etc., that he will not at first touch a bird; but by placing it in his mouth, and compelling him to carry it a short distance, he will readily be confirmed in the habit.

Much care should be taken not to confuse the dog by attempting to teach too much at one time; and also that his disposition be steadied, and that no more punishment is given than is absolutely necessary. A skilful breaker will teach almost any dog, of whatever age, to retrieve properly, and that too, in a short space of time, finding it necessary to occupy but ten or fifteen days in perfecting their instruction. But there is a "knack" in thus training, which very few people possess, and fewer still ever attain. In a recent publication on this subject, the aphorism is laid down, "That any man may attempt to break a dog with certainty of success, provided," (ah! there's the rub!) "provided he will ever keep in mind the watchwords of this science: *observation, patience* and *perseverance.*" To this we would add, complete self control, without which all else is useless.

FLUSHING.

No dog will break shot after having been thoroughly broken, and ever after skilfully handled. The trouble is usually traceable to his master, who by rushing for the bird the instant it falls, sets an example which the dog very naturally follows. When you have "plucked the beam," the "mote" may be eradicated in the following manner: Hunt your dog with a short check cord, and if more than usually headstrong, a force collar. When he comes to a point, let your companion do the shooting, while you hold the cord, and the instant he starts, bring him up with a sharp jerk, forcing him to down charge until the gun is reloaded, and until he is ordered to seek dead. Repeat the treatment. If this proves insufficient, the whip must be resorted to; after which, these failing, nothing remains but to dispose of the animal.

For those who may not understand what is meant by the word "force collar," we add that it consists merely of a strap of leather on which is inserted a number of carpet tacks, sewed with the heads downward to the inner side of a common collar, thus preventing the heads from dropping out, while the points are directly applied to the neck. Such should be loose enough not to irritate except when the cord is used.

RAKING.

All young dogs are apt to rake; that is, to hunt with their noses close to the ground, following their birds by the track rather than by the wind. Birds lie much better to dogs that *wind* them, than those that follow by track. The animal that winds the scent approaches the birds by degrees and without disturbing them; but they are at once alarmed when they see a dog tracing their footsteps. When you perceive that your dog is committing this fault, call to him in an angry tone to "hold up;" he will then grow uneasy and agitated, going first to the one side and then to the other, until the wind brings him the scent of the birds. After finding the game four or five times in this way, he will take the wind of himself, and hunt with his nose high. If it be difficult to correct this fault, it will be necessary to put the *puzzle peg* upon him. This is of very simple construction, consisting only of a

piece of inch board, one foot in length, and an inch and a half in breadth, tapering a little to one end; at the broader end are two holes running longitudinally, through which the collar of the dog is put, and the whole is buckled round his neck; the piece of wood projecting beyond his nose is then fastened with a leather strap or thong to his under jaw, passing between the canine teeth and the molars. By this means the peg advancing five or six inches beyond his muzzle, the dog is prevented from putting his nose to the ground.

APPARENT WANT OF NOSE.

Although it sometimes happens that young dogs lack those olfactory powers for which they are so valuable to the sportsman, they should not be condemned without a fair trial. It often happens that this defect is remedied as the animal advances toward adult age. With dogs that have but just recovered from distemper, this defect is frequently noticeable, but is seldom if ever permanent. During a long drought, when the herbage is in a very dry state, it happens that the keenest nosed animals are frequently unable to find game. In such case let a second trial be given when the state of the weather and moisture of the fields will be more advantageous to the animal. We are confident such will prove satisfactory.

A beautiful setter pup presented to the writer a few years since, seemed to be absolutely without the faculty of scenting game. Being shut in the office one night, in his "high jinks," he overturned a jar of leeches, and probably nosed them, as in the morning he was found bleeding profusely from the nostrils, and had evidently been suffering from hemorrhage the greater part of the night, as he was badly ensanguined. An examination into the state of affairs showed the leech jar broken, whereupon it was conjectured that some of the reptiles had found lodgment in the nose or throat. The result confirmed the diagnosis, two being found attached to the posterior fauces, and three were washed out of the nostrils, four remaining to be accounted for, after those on the floor were picked up. They were probably swallowed. The animal recovered, and with the recovery his infirmity disappeared. Such active treatment is not however recommended.

GUN-SHYNESS.

It is sorely discouraging to the sportsman, after purchasing a setter or pointer puppy, apparently well bred and of good points, and successfully bringing him through the many ills the young dog is heir to, to find the pupil gun-shy, when that portion of his education where the gun is used, is reached. No definite cause can be assigned for this weakness, and we are fain to believe it to be inherent, or due to heredity. To enter upon a full discussion of this subject and the various causes assigned, would demand a volume.

Another not improbable cause is breeding from either broken down or worn out animals, or from those whose extreme youth renders it impossible for them to beget perfect offspring. Too close in breeding is also objectionable for the same reasons. Many fine bred puppies are, however, too high strung, having an extremely sensitive nerve organization, and to the carelessness with which such are handled may be largely attributed their gun-shyness. This is especially the case with setters, who are much more liable to cerebral or brain affections than is generally supposed. If the causes of these attacks were known, we could the better suggest a cure. A friend, an army surgeon and a thorough pathologist, desiring further light upon this subject, obtained a notoriously gun-shy animal for anatomical purposes. He was unable to prosecute his researches as thoroughly as desired, but discovered sufficient disorganization of nerve material to lead him to believe gun-shyness to be but a symptom of disease. If the animal is gun-shy merely as the result of alarm or some transient impression, it may be corrected with care, and the exercise of patience. The treatment must accord with the peculiar temperament of the animal, and will depend largely upon the astuteness of the owner. Moderately gun-shy animals have been cured by discharging fire-arms slightly loaded, or but capped to begin with, in their presence, before feeding, causing the dogs to associate the report with the pleasure of satisfying their hunger. This may be used to advantage, ofttimes, even with old dogs, by bringing them to the verge of starvation. But as before remarked, this is a problem the solution of which, each must work out to his own satisfaction. As "an

ounce of prevention is worth a pound of cure," so too you will find that the earlier you indoctrinate your puppies with a love for the gun in some such method as stated, the less frequently will you have to complain of gun-shy animals in your kennel. At all events, if you are so unfortunate as to have such an animal, do not give it up as incurable without an earnest attempt at eradicating the habit. Moreover, we pay some respect to the theory that dogs become gun-shy after a certain age, those periods varying with the different species of dogs. Just as with old people, so do the nerves of old dogs become weak and sensitive. Setters and pointers become gun-shy after reaching their fourth to sixth year.

WIDE RANGING.

To use a Hibernianism the cure is best accomplished by its prevention. Break your puppy to obey the whistle, and turn at the first sound of it. Some young dogs are so fleet and rash as to require a stout check cord, sufficiently heavy to moderate their speed and tire them down. Few dogs are, however, too fast if they have good noses and are staunch on game. Many persons judge of the speed of their dogs before they have time to run off the wire edge; but take the field with these runaway fellows and it will be found that not one of ten will keep up the gait for more than three or four hours.

In general, wide ranging may be overcome entirely without punishment or speaking a word to the animal. The dog which is continually disappearing from sight and hearing, will continue to do so as long as you indulge yourself in shouting after him. Cease this, and he will soon tire of your lack of attention, particularly if you make it in your way to lose him once or twice, and will thereafter work as well as could be wished.

THE WHIP; ITS USE AND ABUSE.

It is a great mistake to suppose that the whip is essential to the government and regulation of a kennel. To castigate a puppy ten minutes after he has committed a gross error, would be absurd, as his latent natural instinct is almost lost for the time being; but if he is punished the instant the fault is committed, he at once

recognizes the cause of his chastisement. On no account whip him more than once a day, for if you continue to lash him for every mistake committed, his dumb instinct becomes mixed, and the animal remains the same as when you began his schooling, except that you have cowed and injured him. Accustom the puppy to the sound of your voice; he will soon learn to distinguish the peculiar tones, and understand their meaning; by this means you arouse the dormant instinct of the animal.

Every animal which possesses an average quantity of good sense and temper, is so eager for his master's approbation that he will exert himself to the utmost to obtain it; and if this fact were constantly kept in mind there would seldom arise a demand for corporal punishment. We have no hesitancy in saying that at least five out of every six dogs may be completely broken without a blow of the whip, quiet, patient reasoning being all that is requisite to secure obedience and attention. We know this is quite contrary to the opinion of most breakers, who depend mainly upon the whip and loud rating; which, however, are generally but escape valves to the temper, which blows off at high pressure in full force upon the poor animals. The oath and the whip are inseparable; he who uses one demands the other to give the first pungency. We object to the whip for this very reason; it is too handy, and in a moment of passion the puppy is so severely lashed that instead of understanding that he has done wrong, and writhing with pain, and frightened at the violent manner of his master, he seeks only to escape, and once successful in so doing he is ever after a confirmed runaway. Moreover it effects nothing that the check cord will not do as well, even better, and that too without danger. Many naturally fine dogs have been utterly ruined by a single injudicious thrashing; but we have yet to note the first instance in which the cord has produced ill results even in the hands of a novice.

After a dog has been thoroughly broken, we grant you the whip may be used to advantage in certain cases. And when you *do* punish, flog soundly; but only when you catch him "red handed" *in flagrante delictu*. He cannot then mistake the cause; but at the same time watch the animal critically, never allowing castigation to go beyond reasonable punishment, lest you awaken an

angry obstinate resistance that either induces sullenness or develops sly cunning with which the dog attempts to circumvent you the moment he is at liberty. Before allowing him to go, talk to him, but with more of warning than reproof, and finally send him off with a gravely spoken caution; when it becomes evident that an attempt is being made to atone for the fault with good work, encourage him with pleasant cheerful words, which materially assist in a natural and sympathetic understanding.

Never enter the field without the whip, for circumstances *may* arise where its use is absolutely necessary; yet with the exercise of proper vigilance its use may be avoided, ofttimes throughout the entire season. By this we mean watching the animal at all times; never removing your eye from him when it can be avoided, that you may know the moment he strikes a trail, when, if he appear in the slightest degree careless or excited, you may check and thus prevent the commission of a graver fault which would demand the lash. This gives the most perfect control since the dog learns that he is constantly under your eye, and that the slightest fault will be detected; nor is such supervision difficult, as by practice it will become so habitual as to be involuntary, and besides the advantage in handling the dog, it keeps you constantly on the alert, and prevents your being surprised by birds rising wild and unexpectedly, and thus escaping unshot.

You will be amply repaid by treating your dogs as reasoning and reasonable beings. We are constantly surprised at the depth of their perception and their appreciative faculties.* With many

* Dr. E. D. Rogers, U. S. Army, is the owner of a brace of setters which possess a depth of understanding and degree of intelligence rarely witnessed. Almost any command given in an ordinary tone of voice seems to be comprehended, even when the face of the speaker is turned from them, or he is in another apartment. When reading or writing the Doctor will sing in a low tone of voice, and without looking up, "one of you dogs shut that door," when both rush to perform his bidding; but if he specifies either by name, the other does not move.

"Flora, bring me my gloves," or a "glove," the animal distinguishing between the singular and the plural; "Jack, find my gauntlets;" "bring me the shears;" "carry in that stool;" "Take this note to——;" "Jack bring Flora here" and *vice versa*; these are a few of the commands given and obeyed by these dogs. Calling up either he introduces by saying "Jack," or "Flora," as the case may be, "this is Mr.——," and the dogs seem ever after to recognize the person by name. If either one is told that they are to work for another during the day, he

animals an appeal to them by exhibitions of feeling is far more effectual than severity; hence, you cannot study your dogs too closely; always believe them to be endowed with a fair amount of reason and allow them full opportunity to exercise it. Never punish a dog for a mere blunder; he is no more infallible than yourself; do not then, demand more of him than of his master. The best of dogs will commit mistakes; but he will recognize his error as quickly as his master, when a simple reproof or warning given quietly and gravely, as you would speak to a person, will be all sufficient, causing him to go off with an air of mortification which is not lost until the fault is fully atoned for; now give him that look of approval, and the word of commendation which he so manifestly expects and desires; for the dog is a physiognomist in his way, and responds to the expressions of his master's countenance, showing thereby a mental condition working more effectually in your interest than if stimulated by the application of the lash.

BREEDING.

The following principles should be observed for the proper breeding and rearing of the canine race:

1. A perfect development, and sound vigorous health constitutionally, especially in the generative organs, are conditions of fertility.

2. In the maintenance and improvement of a breed the truth that "*similia similibus generantur*,"—that the reproductive germ will stamp upon the animal developed from it the characters of the parent organism, is the backbone of success.

3. We can, in a great degree, at will, produce variations and improvements in breeds, as by care, a mild and salubrious climate, moderate use, education, stimulation, or selection of desirable qualities; by disuse or rejection of undesirable characters and properties; by soliciting the weight of imagination in our favor,—as Jacob piously swindled his too confiding father-in-law; by allowing the breeding animals to mix only with those of the stamp de-

or she, as the case may be, takes position at the heels of the person indicated and works properly and conscientiously until dismissed.

Dr. Rogers uses no bluster, no whip, no signs. He addresses his dogs as intelligent beings, and in the same manner as he would a servant.

sired; by crossing less improved breeds systematically with males of a better race; and by crossing animals faulty or deficient in some particular point with others in which this point is developed in excess.

4. The kenneling of pregnant high-class animals with low bred ones, and the resulting attachments between the two races, are to be especially avoided, as occasionally affecting the progeny injuriously;* strong impressions from a new or unusual condition of surrounding objects are to be equally guarded against.

5. If a valuable bitch be allowed to breed to an inferior male, she cannot be relied upon to produce pure bred animals, for several succeeding pregnancies, at least. Through a strong and retained impression; through the absorption into the system of living particles (germinal matter) from the fœtus; or through some influence during pregnancy on the ova, then being most actively developed, the good or bad features of the first sire are perpetuated in the progeny of succeeding ones.

6. All breeds have a tendency to "throw back," that is, to produce offspring bearing the marks of their less improved and comparatively valueless ancestors; hence individuals of this kind must be rejected from the best breeds, if we would maintain their excellence.

7. Certain bloods and individuals have their characters more fixed, and will transmit and perpetuate them in greater proportion than others with which they may be crossed. If their qualities are desirable, they prove highly valuable in raising other stock of greater excellence; if undesirable, they will depreciate the value of any stock crossed for many generations. That fixedness of type, however, is above all, a characteristic of those bloods which have been carefully selected and bred up to a certain standard for many generations, so that in the best, longest established, and most esteemed breeds we have a most valuable legacy left us by the successful breeders of the past, with which we may mould our inferior bloods at will.

* The following will serve as an example: A young setter bitch belonging to the writer conceived a violent attachment for an emasculated bull dog with which she was constantly associated. The first time she was served it was by a male of her own species, and was thereafter carefully secured, all possibility of an illicit liaison being prevented. At birth four out of five of the puppies littered were marked like the bull, even partaking in many respects of his features.

8. While breeding continuously from the nearest relations tends to a weakened constitution, the aggravation of any taint in the blood, and to sterility, these may be avoided by infusing at intervals fresh blood of the same family, but which has been bred apart from this branch for several generations. Moreover the highest excellence is sometimes attainable only by breeding very closely for a time.

9. Diseased or mutilated animals are generally to be discarded from breeding. Mutilations resulting from disease, disease existing during pregnancy, and disease with a constitutional morbid taint, are above all, to be dreaded as transmissible.

10. There is some foundation for the opinion that the dog tends to contribute more to the locomotion and external organs, nerve and vigor, and the bitch to the size and internal organs, so that if we cannot obtain the greatest excellence in both, we should at least seek to have each unexceptionable in the parts and qualities attributed to it.

11. Judicious breeding in-and-in, improves the animal in the points desired, only when possessed by both male and female; but the mixing of two utterly distinct *races*, with the view of uniting the valuable properties of both, is to be condemned.

12. While early maturity may be attained, animals that grow rapidly are less firm in tissue, and break down sooner than those of slow growth; hence, while the breeder may be benefited by pursuing the forcing process, the purchasers, especially of those animals intended for active field work, will be more or less the sufferers. The terms *cultivation* and *improvement*, as used by breeders, too frequently are but imposing synonyms for the artificial induction of disease, premature development, and systematic degeneration.

SHOULD DOGS BE ALLOWED TO BREED AT PUBERTY?

The process of reproduction is the most characteristic, and in many respects the most interesting of all the phenomena presented by organized bodies. It includes the whole history of the changes taking place in the organs and functions of the individual at successive periods of life, as well as the production, growth, and

development of the new genus which make their appearance by generation.

Life is but a continuation of that development which began with the impregnation of the ova within the maternal body passing through progressive stages, until a certain period or acme is reached, where it is marked by a corresponding retrocession, ending eventually in decay and death.

During the early life of the young dog, the skeleton is incomplete, the nervous system imperfect, and the muscular and alimentary organization lacking in many of the attributes necessary to a *perfect* animal. At the age of puberty, these have to a great extent assumed the outlines, but lack the necessary development, which is assured only at adult age. Ossification is never complete in the canine race until after the twentieth month, and seldom before the twenty-fourth. The relative development according to sex is twenty-four months in the female, and thirty-four in the male.

The signs of puberty in the bitch are not an indication that she is prepared to undergo the pangs of maternity, or that she is imbued with the necessary qualities for the successful propagation of her species. It is merely proof that the organs of reproduction have entered upon the preparatory stage which is to result in perfect development. It indicates that the period of infancy has expired and adolescence supervened.

Under the forcing system so prevalent with the mania for imported dogs, the constant demand for *blood* is fulfilled to the sacrifice—in a great extent—of the physical attributes so essential to perfect animals. Many puppies are found to have reached puberty at the age of ten or twelve months when the period should not develop itself, at the very earliest calculation, before the sixty-fourth week. This may be attributed in part to improper, perhaps, to put it fairly, *over* care. Confinement in illy ventilated kennels, hot stifling atmosphere, constant inhalation of the heated and noxious vapors of the stable, association with young animals who have already reached or just past the climactic period, high feeding or highly seasoned food, and nursing the parent when again in heat, as sometimes happens; all these have more or less influence in forcing the *œstrum* upon the young bitch prematurely.*

* We are aware that the argument will be used, that dogs *in feræ naturæ*

Nutritive changes are constantly taking place in the young animal, and correspond in rapidity with the activity of other vital phenomena. Up to the age of two years then, the demand is fully equal, even in excess of the supply, nothing being in reserve, as the osseous, muscular, circulatory and other systems are undergoing a process of development, and are withal so interwoven with each other, that nothing may be taken from one without detracting from the whole, and consequently rendering that which is now incomplete still more imperfect, taking away a balance which cannot be restored. Hence, to breed a young animal while undergoing the process of development is not only to withdraw a portion of the vital force necessary to its existence, but induces a strain which cannot be borne without detriment, and forces into action organs which are as yet insufficiently matured for the proper performance of the functions for which they are intended. Worst of all is the strain upon the circulatory and nervous systems; the mainspring and compensation-balance, so to speak, of existence.

The vital forces having been thus injured, weakened, it can but be expected that the impress will be stamped upon the offspring; and this is more particularly the case in physical and mental attributes. The father's impress being psychological rather than real, hence the age of the paternal parent cannot be expected to make up for the lack of development possessed by the mother. Then, to demand perfect offspring we must needs have perfect parents, and this we do not have when the parents are yet adolescent. Lack of mental attributes in parents entails a corresponding lack in the offspring, and hence we find gun-shyness, timidity and idiocy. Mating adolescent dogs is like marrying adolescent children.

With regard to the use of the male, we can but add that it is likewise detrimental for reasons physiological. It would afford us pleasure to go into the physiology and ætiology of the subject, but

have no supervision in the matter of the exercise of their sexual appetites. While this is true, it must be remembered that the education of the wild animal, and its treatment in early life, has stamped it as an entirely different animal from the more delicate and carefully nurtured dogs of which we are writing, and to a great extent, an artificial production. Most wild animals mature earlier than domestic ones, but reach adolescence later. There are few true *canidæ* in the wild state, that breed much before two years of age.

it is beyond the limits of this work. To breeders we would say; if you desire full and comprehensible information on the subject of reproduction, purchase a work known as "*Acton on the Reproductive Organs*," published by Lindsay and Blackiston, of Philadelphia.

The argument that gun-shy and otherwise nervous and defective animals are produced by adult parents does not militate against our statement. It must be remembered likewise, that any animal in excess of six years of age is unfit for breeding purposes, having passed the prime of life, and is consequently in the descending scale where there is no provision of nature for other acts than that of nourishment; waste now even exceeding repair. Bitches are better constituted to bear young at six years of age than males are to procreate. Consequently a dog is truly valuable for stock purposes for two and one-half or three years; or more correctly, five seasons, allowing the bitches to be in heat twice each year. The bitch on the contrary is capable of giving full impress of the parent for four years or more; approximately, nine heats. The reason of this difference is solely due to the reflex action upon the nervous system, which takes place in the male in consequence of sexual indulgence. This becomes more marked in stock dogs, which line several bitches in a season. But the female does not meet with the same proportionate shock through sexual congress, hence the disorganization of nerve material is less rapid than in the opposite sex.

Like all good rules the above may have exceptions, yet the fact remains the same. Therefore the safe rules to be observed are:

*First.** Use no bitches for breeding purposes except between the ages of two and six and one-half years if the fullest and best features of the stock are to be transmitted.

Second. Use no dog for stock purposes who is under the age of three years, or over five and one-half with expectation that the best qualities—particularly the intellectual—of the animal will be reproduced in his offspring.

* It has been argued that young mothers, as among Jersey cattle, raise the best offspring. Dogs and cattle do not admit of like comparison, as their anatomical, and more particularly their physiological peculiarities are widely different. However, bitches between two and three years of age do make the best mothers; *but not younger*.

Third. It is desirable that all bitches, to be successful breeders and parents, be impregnated previous to reaching the age of three years. The reason for this is, that the reproductive organs are at their best during that season; whereas, at or during the third year, certain anatomical and physiological changes are liable to take place, owing to non-use of the organs, which render the last stage of gestation, parturition, extremely difficult.

BREEDING FOR KIND.

Periodically some French enthusiast announces a plan for reducing that great process of nature, reproduction, to a level where it may be governed by scientifically applied rules. And, as frequently the German physiologist steps to the front, and with profound and thoroughly inductive logic, backed by the most careful experimentation and thorough physiological researches, proves its falsity. While the physiologists of both countries have long attempted the solution of the problem, one is continually jumping at conclusions, while the other toils patiently for the goal, conning carefully as he goes the facts, and proving each new deduction *pro* and *con*. The great Virchow, the most celebrated as well as the greatest physiologist and pathologist of the age, has decided that the production of the sex at will is an utter impossibility, except so far as may be regulated by the psychical condition of the parents at the time of the sexual act.

PLURALITY OF SIRES.

The admission of a bitch when in heat to the embraces of two different males, even when of the same breed, is highly reprehensible and prejudicial to good offspring, and more likely to perpetuate the bad qualities of both, than the good of either. Even when the lining of the bitch by each takes place at intervals so widely apart as to induce superfœtation, the result is liable to be the same. The effect is much the same as when two dogs are matched for their widely different attributes, as when a bitch who is imperfect in her hind-quarters is lined by a dog who is imperfect in the shoulders; the result being a worthless animal, as imperfections are much more easily transmitted than perfections.

Where imperfection does not appear either mentally or otherwise as the result of a plurality of sires, it must be looked upon as the result of an accident, which will not readily bear repetition.

Is more than one copulation necessary to successful impregnation?—More than one sexual congress is not necessary to impregnation, though it is sometimes advisable for the following reasons.

Young bitches, when desiring the male, eject a viscous fluid from the glands of the vagina, the mouth of uterus, and the neighboring parts. In some respects it appears to be the analogue of the periodical discharges of those of the same sex among animals that assume the erect posture. These discharges are always proof that the female has arrrived at the age of puberty ; that her ovary is now performing its office, and that she is disposed to propagate her kind. Whatever be the cause of this orgasmus, it is often so strong as to counteract the natural effects of the seminal fluid, and prevent impregnation. For this reason many *young* and *lascivious* bitches do not conceive immediately upon the first coition. It is sometimes a practice to beat the female, plunge her in water, weary her with running, and to use other means after copulation to prevent the return of sexual desire, and its resultant secretions.

DISEASES OF DOGS.—WORMS.

Of the number of ills canine flesh is heir to, intestinal parasites is one of the most common. Of these there are three varieties, viz., the *ascarus mystax*, or round worm—the analogue of *a. lumbricoides* in man, *oxyuris vermicularis*, or thread worm, and three species of *tænia*, or tape worm. Besides these a fourth variety known as *tricocephalus dispar*, is said to be sometimes met with. The *fasciola hepatica* inhabits the liver. These last two, however, we have nothing to do with, as too rare to merit notice.

The first, *a. mystax* or round worm, is the animal most commonly met with, and the one that usually demands the interference of medicine, and serves to amuse the man who delights in prescribing for his animals, and upon whose backs all ills are placed, which should ofttimes be borne by the master of the animal whose interior is inhabited. It is much smaller than the corresponding parasite in the human race, attaining a length of but

six centimetres* in the male against twelve in the female, and is distinguished by two wing-like appendages, which extend from the head on each side for a distance from two to four millimetres.† The eggs develop in about four weeks, and have great power to resist external influences; their development not being arrested in strong spirits of wine, chromic acid, or turpentine.

The method of transmission is up to the present time, (1877) unknown. Leuckhart found young round worms in the stomachs of dogs which resembled embryos, both in size and shape. Besides these, he found in the stomach and small intestine, worms in every stage between this and the full matured *ascarus mystax*.‡ He failed, however, to produce such forms by feeding animals on eggs containing embryos, as they either passed through the animals unchanged, or were thoroughly digested. The proper habitation of this worm is the small intestine, and from a clinical standpoint is distinguished by its great activity, it frequently making its way into the stomach. One may often see dogs get rid of whole coils of them by vomiting.

Although the cause of these parasites is unknown, it would seem that climate and habits had much to do with their inception. A damp climate, or damp kennel, with corresponding uncleanliness, and unhealthy diet, seem to be predisposing causes.

The *primary symptoms* of invermination are griping pains—which may be noted by the inflection of the voice; the presence of worms eliminated with or without fæces; acrid eructations; shiny stools; and inflammation of the bowels.

The *secondary symptoms* are, occasional sickness and vomiting, variable and voracious appetite, wasting away of the body, a short hacking cough, heat and itching about the anus, and a vast number of sympathetic affections, such as dizziness, disturbed dreams, grinding of the teeth when napping, or champing of the jaws, etc.; and also the formation of a regular disease, as verminous colic, convulsions, chorea Sancti Viti, pneumonia, and even hemorrhage.

The treatment of verminous symptoms and disease, consists of getting rid of the worms by destroying them, or driving them

* A centimetre is .39371 in. † A millimetre .03937.
‡ Leuckhart, Vol. II. p. 258.

from the body, and by strengthening the system generally, particularly the alvine canal. In every case the bowels should be kept freely open, or the vermifuges will not act successfully.

The list of vermifuges is almost interminable. They may be conveniently divided into two classes:

1. Those that dislodge and drive away intestinal worms by some mechanical or other external action; as all drastic purges, all oleaginous vermifuges as oil of beech nuts, castor, sulphur, petroleum, sea salt, tin filings, powdered glass, pomegranate root, kamela, areca nut, koosso, and the down of the pods of cowhage. The last four more particularly act by setting up an inflammatory condition of the bowels, which are remedies the effects of which are frequently more to be deplored than the disease.

2. Those that destroy them by killing before they are expelled; as the male fern, hellebore, fetid hellebore, cevadilla, Chabert's oil (obsolete), tansy, savine, rue, dittany, tobacco, wormseed and its active principle santonine, oil of turpentine, the bark of the bulge-water tree and of the cabbage tree, the spigelias, and Indian scabiosa. Many of these are hardly worth noticing; while others are most effectual in the elimination of tape worms; savine, rue, tansy and tobacco must be avoided in pregnant animals, and at best are very uncertain in action. Of the prescriptions at the end of the section, 1 represents the best of the first; and 2 and 3 of the second.

Thread Worm.—This a small, white round worm, which is tapered off at both ends. They vary in length from three to twelve millimetres *. The embryos are hatched in the rectum, and appear to betake themselves almost immediately to the upper portion of the small intestine, where they rapidly increase in size, obtaining their nourishment from the chyme and the intestinal mucus. As soon as they attain a certain size, some of the young worms have sexual intercourse while here residing; others however, descend into the cæcum for this purpose. In favorable cases one finds large numbers of females in every stage of development, in the small intestine, and in the cæcum, with a like number of males. The young fructified females gradually collect in the cæcum, and live there for considerable time,—until they are full-

* I use the French measurement as the English is not sufficiently fine for the purpose.

grown, and filled to bursting with eggs. They then commence slowly to descend the large intestine, and finally deposit the chief part of their eggs in the rectum; they occasionally even leave the latter and creep about on the moist skin around the anus. By this it will be seen that the generally prevalent idea, and that which is upheld in all the books, that the oxyuris inhabits the rectum, is entirely false. The untenability of this view should have long since been deduced from the fact that it is impossible to get rid of the worms by most thorough local treatment applied to the rectum.

The symptoms of the presence of these worms are rather vague, except where they descend to the rectum to lay their eggs, and cause, by their active boring movements, and unbearable tickling and painful itching just within and in the folds of the anus, which frequently become so unbearable as to cause the poor dog to endeavor by every change of posture, by dragging his rump upon the ground, by biting, and by walking about, to cause the troublesome sensations to cease. As a rule, however, they last for considerable time, and only go away, sooner or later to again appear. Sometimes emptying the rectum brings ease by removing mechanically the worms that were buried there.

Bitches are further inconvenienced by worms that have escaped from the rectum, creeping into the vulva and vagina, and there giving rise, from their serpentine and boring movements, to very great irritation of the sexual organs.

Except as local irritants, these parasites exercise no prejudicial effect upon the animal. The diagnosis of the disorder is usually easy, as if very many worms are present, we can usually find one or two on the skin in the neighborhood of the anus, especially directly after the fæces have been voided, which also usually contain them.

So long as the rectum was looked upon as the chief seat of these worms, there could be no hope of thoroughly getting rid of them. Since this worm inhabits the cæcum, all internal medicines which are absorbed in the small intestine are without effect. We are forced to re-echo the complaints of Bremser, who says: "Their number is legion, and if, after we have slaughtered thousands, we lay our weapons aside for a moment, imagining ourselves safe from a fresh attack, new cohorts again advance with increased reinforce-

ments. The fæces and intestinal mucus contained in the large intestine, behind which they hide themselves, serve them for a breastwork and a parapet. If one attacks them from in front with vermifuges, these become so weakened by the long march through the small intestine that the worms only laugh at them. If we attack them in the rear with heavy artillery, the foreposts stationed in the rectum must certainly succumb; but the heaviest bombardment cannot reach those encamped in the cæcum; and so long as ever so few remain behind, in some hiding place, they, from the amazing rapidity with which they are reproduced, soon again become a large army."

For the temporary relief of the animal, we make use of an injection as per prescription No. 4. This will also effect a cure if used repeatedly, and the injection be carried high up by means of a gutta-percha rectum tube; but this should be left to the experienced practitioner. Also physic should be given occasionally, especially aloes, which increases the fetid secretions peculiar to the rectum of the dog, and thereby becomes in a measure fatal to the worms that have found lodgment in that portion of the alimentary tract.

TAPE WORM.

Tænia elliptica: This is a delicate tape worm common to the canine race, and is said to be propagated by means of the dog louse, (Trichodectes canis) which the embryo inhabits. It measures from one hundred to three hundred millimeters in length, and the head is furnished with a rostellum, which the animal has the power of projecting forwards, on which are placed about sixty hooks, arranged irregularly in three or four rows. The anterior portion of the body is like a thread, and the segments are very short; more posteriorly they become somewhat longer. As they become ripe, the divisions between the segments become more and more marked, so that the worm presents a chain-like appearance. The ripest segments have a reddish white color, and very readily become detached. They creep about actively in the intestine, and are either expelled with the fæces or escape of themselves. In each segment there is a double set of sexual organs, and there is a genital pore situated on the margin of the segment. This

worm inhabits the small intestine, and is frequently found therein in considerable numbers.

Bothriocephalus cordatus: This tape worm is found only in dogs which inhabit arctic countries, hence does not demand our consideration.

Bothriocephalus latus: This species will be found in only imported animals, and is by far the most serious parasite we have to deal with, besides being the largest. It attains a length of from five to eight metres, sixteen to twenty-four feet, and is necessarily oftentimes repeatedly doubled upon itself. The head is almond shaped, and about two millimetres long, and one broad. The flat surfaces of the head correspond to those of the body. Along each side of the head runs a fissure-like pit in which its suction apparatus is placed. When fresh the worm has a dull bluish grey color.

The mode of development is unknown. It is supposed that *B. latus* exists during its immediate stage of development in some aquatic animal, which acts as its temporary host. This is but a mere deduction drawn from the experiments of Abildgard, who proved that a kindred species, *B. solidus*, which occurs in the abdomen of fishes, only becomes developed into a tape worm after its host has been devoured by some animal, in the intestines of which it becomes developed. *Tænia solum* and *T. saginata* so common to the human race, are unknown to canines, except as artificially propagated in them for the purpose of experiment.

No anatomical change has ever been found that could be said to be caused by tapeworm, except that *T. elliptica (cucumerina)* lies in tunnel-like spaces in the intestine, formed by the flattening out and adhesion of the villi. Dogs are frequently inhabited for years by tape worm without their ever giving rise to the slightest unpleasant feeling; and we sometimes have our attention accidentally drawn to their presence in animals which are thriving most satisfactorily, by the expulsion of segments of the worm.

In general, however, the animal that plays the host to one of these parasites, presents symptoms of more or less disturbance of digestion and nutrition; and even abnormal phenomena in the nervous system, occur without our being in the least able to localize the trouble. The sufferer gives evidence of various unpleasant

sensations in the lower part of the abdomen, which take on all the appearance of colic; these sensations are most marked when the animal has for some time been deprived of food, or after the use of particular articles of diet, while, on the other hand, they are mitigated by eating, and especially by the use of certain articles of food, as mush and milk, oatmeal, etc. Ravenous hunger is of frequent occurrence, and when we see a well fed dog eating voraciously throughout his meal, and simulating a half starved animal, it behooves us to suspect, and to be on the look out for, these intestinal parasites, particularly if he suffers from distension of the abdomen, disturbance of the digestive canal, especially diarrhœa alternating with constipation. Cramps, blindness, deafness, chorea, salivation without appreciable cause, vomiting, and marked unreliability of the olfactory organs are likewise symptomatic.

Unless the diagnosis is certain, it is scarcely allowable to make such an attack on the economy of the intestinal canal as a tape-worm cure always must be. And the diagnosis can only be certain when it is known that segments of a worm have been expelled.

The cure can only be said to be complete if the head is found, or if several worms are present, a head for each. *There is no such thing as a partial cure.* It is judicious, before commencing the actual cure, to give the dog some preparatory treatment, by which we empty the intestinal tract, so that the worm when detached may pass more quickly, and the cure therefore be sooner ended. With this object, however, only the very mildest purgatives should be given. For strong purgatives readily cause parts of the worm to be torn off and expelled, and as a consequence our efforts to dislodge the part that remains may fail. Of the many medicines that are more or less effectual, koosso and male fern are most to be recommended. Where the former is used, two hours after it is swallowed, the animal should be given a dose of castor oil. See prescriptions 5, 6, 7, and 8. The last may be used as preparatory.

Once the cure is over, we must take compassion on the digestive tract that has suffered such rough usage, and the animal should therefore get some mucilaginous soup, or an emulsion with, in some cases, a few drops of laudanum. (No. 9.) Bark of pomegranate root has been recommended, but it is too powerful for canine con-

stitutions, causing violent pains in the abdomen, nausea and vomiting of severe character, and a number of other troublesome and indirect effects.

To prevent tapeworm in the dog, it is essential that care be taken in his diet, that he be not allowed to feed on carrion or excrementitious matters, and that the meal with which he is fed is *thoroughly* cooked. We may say, as a general rule, that no meat should be used which still retains a red color, still less such that contains blood; and no reddish, still less red, fluid should escape. The use of raw meat, or of swine flesh in *any form*, should be entirely condemned. I will here say too, not only in behalf of the canine, but the human race, that the presence of a tapeworm is not only a source of danger to the health of the individual, but to every one else in the same house with him, and to every domestic animal attached thereto; and a person afflicted with these parasites is more to be shunned than one suffering from small pox or the itch; the ways by which the parasite may be conveyed being both numerous and insidious. It is hardly necessary to say that a tapeworm that has been expelled should not be thrown aside. It should first be rendered harmless, which is best done by pouring boiling water over it.

ENTERITIS. INFLAMMATION OF THE BOWELS. INTESTINAL CATARRH.

In order to understand the frequency of intestinal inflammations, it is necessary to recall some of the anatomical peculiarities of the mucous membrane of the intestines. Those who are familiar with anatomy will remember that the network of minute blood-vessels in the villi of the small intestine is situated immediately under the epithelium,* and for this reason the vessels are directly exposed to the influence of irritating substances. Furthermore the venous twigs in the mucous membrane of the large intestine are exactly the same as in the corresponding membrane of the stomach (they form a capillary network, each twig of which returns upon itself in a loop at the extremity of the projection, communicating freely with the adjacent vessels, forming a close plexus around the

* Epithelium.—Mucous membrane.

areolar tissue which binds together the small glandular epithelium cells,) so that the return of blood from the capillaries meets with a certain degree of resistance. A similar effect is produced, also by another anatomical peculiarity of the intestinal circulation, viz., that while the arteries in their passage through the muscularis * of the intestine are surrounded by quite a strong sheath of connective tissue, the venous twigs, on the contrary, pierce the muscular coat in an exposed condition, so that every muscular contraction produces more or less interference with the *return flow of blood*. Finally, from the fact that during the process of digestion the chyle †-vessels of the mesentery always contain red blood-corpuscles, it may probably be inferred that the intestinal mucous membrane is one of the regions of the body where the passage of blood cells through the walls of the vessels takes place with special facility. It is not surprising, therefore, that the *intestinal mucous membrane should be particularly liable to inflammation*, and that even slight irritations may suffice to excite the same.

The exciting *causes* of enteritis are therefore extremely numerous, as the following enumeration will abundantly show.

Not to speak of the inflammations which are produced by the extension to the intestinal mucous membrane of an inflammation in a neighboring organ, the occurrence of such always presupposes one of two causes: either the irritations are of *abnormal* character, the mucous membrane being normal, or for some cause, the *intestinal mucous membrane* has *lost its normal character*, so that even normal irritations are sufficient to excite an inflammation.

Under the first of these classes of causes are included all articles of food which produce severe mechanical or chemical irritation, as indigestible or fermenting food, *foreign bodies*, *poisons* and powerful purgative medicines. Intestinal inflammation is sometimes produced also by a massive accumulation of worms. Another not unfrequent cause is the presence of intestinal concretions, or indurated fæces, especially above places where the intestine has been narrowed by a bend of the bowels, adhesions, etc. The latter of these causes—fæcal impaction—not merely acts mechanically upon

* Muscularis. Belonging to the muscles.

† Chyle. The milk-like substance from which blood is formed.

the intestinal mucous membrane, but also chemically by means of the putrefactive changes which take place in the retained fæces.

Another very common cause of intestinal inflammation is the *influence of cold*, which probably acts by driving the suddenly cooled blood upon the surface of the body into the intestines where the irritation excites increased peristaltis * and inflammation. Finally abdominal injuries may produce enteritis even of a chronic character.

In the second category of causes, are included all abnormal conditions which induce a morbid hyperæmia † of the intestinal mucous membrane. Chief among these are the passive congestions in the portal circulation ‡ produced by affections of the liver, or of the portal vein itself, or by tumors compressing the mesenteric veins; also the general congestions which occur in connection with the diseases of the circulating system and of the air passages.

According as the exciting cause of enteritis is of temporary, frequently recurring, or permanent character, the affection runs an *acute* or a *chronic* course.

The disease is a very frequent one, and spares no age. Young animals are particularly apt to be attacked, chiefly on account of the sensitiveness of the intestinal mucous membrane in puppyhood, and the facility with which their food becomes decomposed. Meteorological conditions are well known to influence the frequency of the disease. The hottest months are regarded as having especial influence, particularly when there is a rapid alteration of day and night temperatures.

The symptoms of this disorder are usually not very characteristic, at least they vary considerably in their degrees of development in different cases, and are very irregular in their occurrence. Furthermore, the differences in the anatomical structure and the functions of the various divisions of the intestine must modify the symptoms to such a degree, according as the inflammation is differently situated, that it will be impossible to give a general description which is applicable to all cases of enteritis. I will therefore

* The vermicular or worm-like motion of the intestines.

† The name given to congestion of blood in a part, from whatever cause.

‡ The circulation of venous blood derived from the abdominal organs through the liver.

point out only the most common forms of this disease and give their distinctive characteristics and general treatment.

Mucous enteritis is attended with a diffuse soreness over the whole abdomen, rather than with pain. This is sometimes increased on pressure, but never to the extent that prevails in serous *enteritis*. There is no considerable tension in the belly. The pulse is quick, with thirst, *languor*, the tongue whitish and papillated, and considerable febrile oppression, the temperature of the body being 80° to 84°, rarely 90°. Vomiting is frequently noticed, with loss of appetite, indigestion, and irregularity in the alvine evacuations. Diarrhœa is almost uniformly present, often attended with straining and perhaps tinged with blood. *This is the only diarrhœa of canines worthy of especial attention, and must not be treated as a diarrhœa. Remove the cause and the diarrhœa will take care of itself.* This disease is not itself fatal, but may give rise to peritoneal inflammation; it may advance to ulceration of the mucous coat with softening and perforation. Gentle purgatives, as sweet oil and aloine only, are admissible. (No. 8). Demulcents and anodynes are afterwards used to allay the irritation of the bowels, (No. 9) and tonics may be used when this has been accomplished. Blue moss and extract of hyoscyamus constitute a very serviceable medicine in allaying irritation, but must be used with caution. Aconite is also serviceable particularly when the disease remains unnoticed until it has assumed its severer forms. The diet must be milk and soups, and change of air with gentle exercise are necessary.

Sec. No. 8. 9. 10. and 11. Particular symptoms as vomiting and tenesimus,* must be met as occasion demands. Sec. 12. 13. 14.

The second form of inflammation of the bowels, in which the serous and muscular coats of the intestine are involved, is known as *peritonitis*.

The symptoms of this disease are much like the former, but are more intensified. The eyes are dull, and there is a general appearance of languor; loss of appetite; the animal lying on the belly with outstretched legs; high temperature, reaching 100° and over; tongue dry and rough; nose dry and hot; ears and legs cold; pulse small, hard and wiry, about 45, marked thirst; respi-

* Frequent straining accompanied by a desire to void fæcal matter, etc.

ration difficult or long drawn; and general symptoms of uneasiness and inquietude.

The bowels are usually constipated, and the urine very high colored and scanty. The animal is constantly licking or attempting to swallow stones and other cold articles, and during the first stages scratches his bed up into a heap, and presses the belly upon it, and darkness is preferable to light. The tail is also drawn firmly downwards, and in many cases, not always, the pupil is dilated.

When vomiting is absent, the disease is generally more troublesome. As the trouble progresses, the symptoms are more aggravated, and in the second stage the flanks are drawn in, the muscles of the abdomen hard and tense, the dog continually giving expression to low moans with occasional sharp cries of pain. Constipation is frequently present from first to last, though diarrhœa often supervenes in the last stage enhancing the prostration, already excessive, of the poor animal.

Great care must be taken at the outset not to confound this disease with colic. The moment that peritonitis is diagnosed beyond doubt, remove the animal to cool dry quarters, and administer at once a full dose of calomel and opium (No. 15). You will doubtless be told that the bowels are already inflamed and demand rest, and they should not move. Pay no attention to such advice. Nine times in ten the impaction of fæcal matter is aggravating the inflammation, and safety demands its removal. If this does not operate, follow with a saline cathartic as Rochelle salts, which will not only remove the difficulty, but prove very grateful to the patient. Except the first dose, do not again give opium in full dose. The cathartic having operated the pulse will be found to have diminished. Now administer one drop of tincture of aconite with three grains of bromide of potash (No. 11) every two hours, watching the pulse carefully, resorting to opium in the form of tincture of wine in case the bromide is not sufficiently sedative; as six drops of tincture repeated every half hour will be sufficient, and answer the purpose better than larger doses given less frequently. Should the stomach be too irritable to retain the medicine,* pursue just the same, giving with each dose three grains

* Should vomiting occur within six hours after calomel is given, pay no attention to it. It will pass off of itself with the action of the medicine.

of Squibb's *sub carbonate* of bismuth, (14) or one grain of the oxalate of cerium. If the opium does not control the pulse, resort to the aconite again after the stomach is quieted. Six or eight hours subsequent to the operation of the cathartic, the animal will be entirely relieved if your medicines have taken effect; but by no means consider him out of danger. If the pulse has become as it should be by this time, soft and full, suspend the aconite, continuing the bromide, but give one-quarter grain of quinine, and one-quarter grain of leptandrin every two hours, (No. 17) alternating with the bromide, and continue the treatment for several days, giving a moderate dose of opium at night, or a pill of hyoscyamus (solid extract) one-quarter grain. The animal may be nourished meantime by beef tea, bland soups, arrow root, etc. Bread and meat to be avoided. Every care must be taken of the animal for at least a month thereafter, and it will be advantageous to continue the quinine and leptandrin for two or three weeks at meal times, it answering all the purposes of other tonic.

DIARRHŒA AND DYSENTERY.

Both of these disorders are dependent upon, and usually the *sequelæ* of other diseases. The free use of opium as severally recommended and astringents is to be deplored. Nature, already poisoned, is attempting to rid herself of the cause, and hence we have diarrhœa and dysentery. Astringents only are demanded when the discharge is so free as to endanger the life of the animal by the drainage of the fluids of the body. Opium is used only to relieve pain and tenesimus, and may be administered both by the mouth and as an enema. When given by the mouth it may be given with leptandrin, quinine and tannin. By the rectum with starch. (See 20.) The combination of tannic acid and quinine is particularly happy, it forming the tannate of quinine which in these disorders is often invaluable.

Besides the foregoing, general tonics will be found of value, as the mineral acids, etc. (See Tonics.)

COLIC ILLEUS.

This complaint is largely confounded with both forms of enteritis. The distinction is best made by watching the animal,

If he appear perfectly well just previous and subsequent to the spasm, with cool and moist nose, in fact no more symptoms than constipation, and the frequently recurring attacks of pain, we may fairly conclude that he is suffering with colic. In such case administer 12 and 13, with the addition of five grains of bromide of potassium, every half hour until relief is obtained. You may with advantage use No 21 either alone or in combination with the above prescription. As soon as comfort is obtained, give full dose of 22.

AFFECTIONS OF THE EYE.

Simple Inflammation or Irritation.—When the eyes of a dog are inflamed from contact with minute particles of dust, grass seeds, pollen, etc.; or have received some slight superficial injury, the organ should be gently sponged with tepid rain water, until all extraneous matters are removed. Now bathe the eye with eye water, as per prescription No 23 or 24. For external bruises or cuts, apply 25 or 26.

This is all sufficient for minor troubles, though if the cornea or iris be scratched, or cut, No 24 must be used in preference to 23, as the deposit of lead will make a white opaque scar. *See Scars* No 27.

Ophthalmitis.—Miscalled ophthalmia. This is a term applied to an inflammation of the membranes of the eye, or of the whole bulb of the eye. The form of disease that is common to young puppies may be relieved by cleanliness, and the free use of No 23 or 24. *Ophthalmitis conjunctivæ* is sometimes met with in the immature animal, though it is commonly a disease of adult age, and is produced by cold wind, dust, or other external irritation. It generally begins with the appearance of a net work of blood-vessels on some part of the conjunctiva, the mucous membrane covering the exposed surface of the eyeball and lining the internal surface of the lid, of the eyeball or eyelids. The eyelids become swollen and tender, and the redness soon covers the whole conjunction; there is an increased discharge of tears, and intolerance of light. A glutinous matter is now secreted, which frequently causes the eyelids to stick very firmly together. It is no unusual thing for the disease to commence in one eye, and in a day or two

seize the other. Mild cases of conjunctival ophthalmitis are removed by some mild astringent application. The eye should be well cleansed from the glutinous matter with warm milk and water, when the eyelids may be everted and gently touched upon their inner surface with a crayon of alum or sulphate of copper. The crayons are made by whittling out a pencil from a lump of crude alum or blue vitriol—the former is best—which must be afterwards carefully smoothed and rounded. Nitrate of silver or lunar caustic had best be avoided, as it is seldom necessary to resort to its use, and is moreover a dangerous remedy in the hands of unprofessionals.

There is an acute form of this disorder which demands active constitutional treatment. It as well as the other diseases of the visual organ should be treated only by professional gentlemen.

Cataract.—Prescription No. 29 is used in Europe to promote the absorption of cataract. It may be used without fear, and in a limited percentage answers all the purposes of an operation; but it cannot be applied with absolute certainty of success, and is moreover utterly useless in cataracts of long standing. These must be operated upon by a skillful oculist; and be certain that he is *skillful.*

DISEASES OF THE SKIN.

Alopecia. Falling out of the Hair.—The causes for the falling of the hair are defective development of, and defective circulation in the formative organs. The remote causes are, hereditary peculiarity, age, termination of acute diseases, excess of venery in the dog, ill nourishment, and certain diseases of the skin.

Except in the latter case, or where senility is the cause, we may remedy by giving proper nourishment, and the application of 20 or 31, as directed.

Mange.—This is a term applied promiscuously to all diseases which affect the integument of the dog. It is, however, properly used only when applied to the first of the following.

Scabies Canina, Scab Mange, Canine Itch.—This, like the "old Scotch fiddle" that affects the human race, is dependent upon a minute insect, which finds its way beneath the surface of the cuticle and there breeds and disseminates itself to the other parts.

For reasons obvious, the back is most seriously affected; the disease being milder and less marked toward the extremities. The canine *acarus* is not identical with the human parasite, and cannot live in the integuments frequented by the latter.

The treatment as usually laid down, is as nauseous to the owner of the animal as the disease itself. There is no reason for this whatever. Wash your dog thoroughly with warm water, and *Cotswell, Hazard and Co.'s "Juniper Tar Soap"; none other*, and administer an occasional cathartic. Saponaceous compounds as 32, 33 may be used to advantage, the animal being easily cleaned thereafter, and possess the advantage of not soiling the habiliments of the person who applies them.

If the above fail, 34 thoroughly rubbed in and allowed to dry will prove infallible.

This disease is readily diagnosed from the fact that while the skin is partially denuded of hair, that which remains is coarse and unnatural to the touch, and looks all awry and unthrifty. The skin too, if not absolutely red and inflamed, is dry and scaly.

Trichoses Furfuracea Canina. Ring Worm of Dogs.—This too, is known as *mange*. I give it the above title as most applicable, it most resembling Trichoses furfuracea as exhibited in the human subject, and apparently depending upon the same causes.

My attention was first called to the similarity some years since when a medical student, by the late Prof. Howard Townsend, of Albany, New York.

The hair partially falls off, and the disorder is well marked by bare patches of small dimensions appearing upon the most prominent angles of the body, so as to lead one to suppose that they were the result of chafing. And so they are, but there is a *cause* for the rubbing.

In the early stages of the attack, the only appearance of disorder that can be detected is a thin layer of scurf, either in separate scales around single hairs, or in patches, including several, or a more considerable number. This formation is accompanied by a slight degree of itching, which is relieved as soon as the scurf is torn away by rubbing against some convenient post. At a later period the skin upon which the furfuraceous scales are dusted appears reddish and slightly raised; the papillæ next make their ap-

pearance on the slightly reddened patches, and subsequently the peculiar alteration of the hair.

The hairs in the neighborhood of this disease are remarkable for their bent and twisted shape, and resemble the fibres of hemp in appearance as well as texture; they are irregular in thickness, and are broken off at variable and various distances from the integument, giving rise to the moth-eaten appearance so characteristic of the disease.

The crusts which form the morbid patches when the disease is neglected, are composed of furfuraceous scales and diseased hairs agglutinated together by the moisture which rises from the skin; they are greyish in color, and when of large size are apt to break up, in consequence of the movements of the integument, into sections. On the surface of the crust, which is dry and harsh, the tow-like fibres of the diseased hairs may generally be perceived.

In the early part of its course, this disease is unattended with discharge of any kind, and often the absence of secretion is conspicuous throughout its entire existence. At other times, and especially when neglected, the crusts give rise to considerable itching, and the attempts made to relieve the annoyance aggravate the inflammation of the skin, and occasion discharges of ichor and pus. Occasionally too, as a complication of disease dependent upon increased inflammation, pus forms around the apertures of the follicles and a small crop of pustules is the result. These pustules, when they exist, are observed in the most active part of the patches, namely, along the edge, and in this situation I have sometimes seen them forming a double or triple row.

This is a disease of deranged nutrition, the cause being debility of the organization, originating probably in defective innervation; this must be attributed in turn to ill care, and general lack of attention to cleanliness. It is a disorder to which poverty and filth greatly contributes.

It is not contagious.

The indications in the treatment are:

First.—To restore the defective power of the constitution.

Second.—To restore the local power of the skin.

These objects are to be fulfilled by similar means; the first in-

dication calling for improved hygienic conditions, and tonic-alterative medicines; the second requiring stimulating applications.

The important hygienic principles as air, exercise, and cleanliness, cannot be too strongly urged in this disorder. Cases may sometimes be cured by placing the kennel in an airy place, where sunshine is abundant throughout the day, seconded by a better assorted diet, and by a local application of the simplest kind. Washing with *Juniper Tar Soap* answers the latter purpose; to which we may add a good strong diet of animal food. Many cases may be traced directly to a too exclusive vegetable and milk diet; as for instance, this disease was caused in a young dog of my own by an exclusive diet of corn meal. Raw or cooked potato diet, the use of apples of which many animals are fond, will be found valuable adjuncts of animal food in the eradication of this disease.

The medicines which are best adapted to this disease are, the Liquor Arsenicalis et Hydrargii Iodii, as being both tonic and alterative (35), the citrate acetate, or hydrochlorate of iron; iodide of iron; iron with quinine; nitro-muriatic acid (made with *equal* parts of each acid) either alone or with the tincture of cinchona or gentian. *(See Tonics.)*

The general functions of the body are to be regulated in the usual way; but aperients and purgatives are to be used sparingly, and with care. As a laxative, there is none better than the confection of senna with sulphur and cream tartar. (36.)

If there be any swelling of the glands of the neck, as is often the case, use the iodinized cod-liver oil of Caswell & Co., or of Fougera; and in animals that lack in solidity of bone, lime water.

When the disease is severe, the crusts should be pencilled with *glacial* acetic acid, and then anointed with No. 26. With milder cases the black wash No. 37 and Juniper Tar Soap will be found sufficient. From an ointment of sulphate of zinc, or the comp. sulpt. oint., good results are often obtained. It must be remembered, however, that the eradication of this disorder is slow and perseverance and patience are essential to its proper treatment.

Osmidrosis; alteration of secretions (*Mange?*)—This is a disease of the perspiratory glands. Those who believe that dogs perspire only through the tongue or mouth, may as well abandon

the idea first as last; for the skin of the animal is provided with true glands of this character.

This disorder, which is also miscalled *mange*, may be at once known by the enormously thickened hide of the animal, largely devoid of sensation, and the odor which exhales from his body; the latter is peculiarly acid and rank. The animal passes the entire day in apathy, showing activity at meal time alone or when licking, biting or scratching his body. The hair is more or less removed from the back, and the thickest portion of the skin is just above the neck, or just before the tail.

This is in a great measure the direct opposite of the preceding disorder, being caused by too exclusive an animal diet, and attacks only very fat and over-fed animals; uncleanliness contributes much to the disorder also.

Undoubtedly the best remedy is that said to be practiced by dog fanciers upon the disgustingly obese and ill-tempered animals that enjoy the life peculiar to lap-dogs, viz.: the brute is tied to a crow bar or post in the middle of a yard, kicked that he may wail, and left to exhaust himself with cries, and starved until he looks upon the most dirty and thoroughly picked bone as an especial dainty. This is followed by starvation diet for a few weeks. The treatment is undoubtedly effective, particularly for the class of dogs indicated.

Low vegetable diet is to be given. If the animal refuse it, let it be at once removed, and not offered again until the following day. If he choose to starve for a week, all the better. Wash the animal with juniper tar soap once every day in the morning if possible, and at night, sponge with a weak solution of chloride of lime. An emetic of ipecac or tartarized antimony may be given at the outset followed by a laxative, (36.) Each day the animal to be exercised thoroughly, and when he begins to accept the food offered he should be given the liquor arsenicalis et hydrargii iodidii, increasing the dose as per prescription 35. Now apply to the back No. 26, 25, or 37.

Purpura canina, (*Mange?*)—This is usually either a disorder of senility or puppyhood, dependent upon imperfect nutrition. It is much the same as scurvy in the human subject, and makes its appearance in an efflorescence of purple and livid spots on the

skin, interspersed here and there with pustules. The hair falls off; young animals more especially, being frequently rendered almost void of covering.

With puppies, the cause must be looked for in the milk which the parent provides for their nourishment, and the food of the bitch must be carefully looked to, and an entire vegetable diet substituted. We must also restore power, and remove the cause, which is sometimes difficult to determine.

The cause must be looked for either in the food or in the surroundings of the animals themselves. If there is defective ventilation, or the kennel is placed in a damp situation, exposed to noxious malarious vapors, or noisome odors from the sewers or stables, we may with tolerable safety assign these as the cause. Insufficient food is another, as is neglect of exercise and habits of cleanliness; or, again, it may be the consequence of some organic disease, of local weakening of the tissues, as in dropsy, or of general and local weakening, as in old age.

The treatment opens with saline laxatives as Rochelle salts (16 or 36), or a cathartic and alterative dose of calomel may be advisable, to remove any irritant matters or secretions that may be present in the alimentary canal, or in the ducts of the liver and kidneys; sometimes we may conjoin a tonic with an aperient as the citrate of potash in solution with quinine, from which after sufficient action has been obtained, we change to the citrate of iron and quinine. Iodide of potassium for nursing bitches, combined with columba (38) will probably be the most serviceable, alternating with quinine and queveenes iron, (39) avoiding acids; but in other cases great benefit will be found from elixir of vitriol and tincture or fluid extract of cinchona, (40) or nitro-muriatic acid and fluid extract of gentian or cinchona (41). Puppies when nursing need little or no medicine, that which is administered to the parent being all sufficient.

For external applications, the muriate of ammonia pomade (No. 30) or a moderate solution of borax (47) applied to the skin will be all sufficient.

Having used vegetable diet for a few days, beef or mutton soup strained, may be mixed with the rice—rice and potatoes being the best diet.

This disorder may be prevented, by providing your dogs with plenty of quitch grass. A fluid extract made from this grass, (*Triticum repens* 48), will be all the medicine puppies will need.

DISEASES OF THE RESPIRATORY ORGANS.

Pneumonia ; Simple Inflammation of the Lungs ; Lung Fever.—With the canines, pneumonia and pleuro-pneumonia are each more strongly marked than in the human race. Of the former, nothing need be said, the treatment, etc., as laid down in the succeeding subject being ample.

Distemper Proper.—True canine distemper is of extremely rare occurrence, if indeed it ever makes its appearance in the U. S. and Canadas. As laid down by that eminent pathologist, Kolliger, it is a disease attended by a catarrh, consisting essentially in an irritation of the brain and spinal marrow, and characterized by frequent convulsions tetanic in character ; its fatality being enhanced by the supervention of inflammation of the lungs.

The disease is wondrously fatal, only about ten per cent making recoveries.

The disease, *generally* known throughout the world as distemper, is commonly *pleuro-pneumonia*, though many other disorders are ofttimes included under the same title.

Distemper ; Pleuro-pneumonia ; Lung Fever.—There appears to be two forms of *pleuro-pneumonia* to which the dog is subjected : one of which seems to be somewhat *epizootic* in character. This is then, perhaps, entitled to be called distemper.

It may be that pleuro-pneumonia as exhibited in the dog only takes this form. Or it may be that it assumes two forms : the one due to irritation and inflammation resultant upon the use of a morbific poison ; and the other, from more natural causes. At all events, the disease, though not contagious, would seem to be infectious in one of its forms ; this may, however, be due to the fact, that gangrene of the lung is commonly attendant upon the disorder, though not usually virulent in character. I am drawn to this belief, not only from the deductions of pathologists, but from the results of personal observation, verified by an autopsy of an animal which died from an unusually severe attack of so-called

distemper but a few days previous to the writing of this article. The result of the examination will be found farther on.

It is very difficult to point out the diagnostic symptoms of pneumonia to the non-professional observer, as we ascertain its extent, its situation, and every step of its progress, by means of the ear. All the symptoms that give us the most sure information respecting the nature of the disease, the event to which it tends, and the remedial treatment which it requires, spring out of the actual changes wrought in the pulmonary substance itself; and these changes are disclosed to us by the method of auscultation. It is necessary, therefore, in order to treat this disease understandingly and properly, you should know first of all, what those changes are which are produced by inflammation of the substance of the lungs: that you should know the morbid anatomy of pneumonia, as an indispensable groundwork for the knowledge of its pathology. For this reason, if none other, the account of the autopsy given would be valuable in order to grasp more fully the rationale of treatment.

The majority of cases of *simple* pneumonia in dogs, is allowed usually to run its course unnoticed, no symptoms being observed other than a slight cough, or comparative dull condition of the animal; or it passes for a very slight attack of distemper, and runs its usual course terminating favorably, thanks to the constitution of the animal, and not the so-called distemper remedies. But if the simple inflammation of the lungs involves the surrounding tissues, as may be the case from the outset, or as a result of pneumonia proper, it becomes an entirely different affair. The pleura, (the serous membrane that lines the interior of the thorax,) is most likely to be involved, and the disease becomes *pleuro-pneumonia*.

Autopsy of a Newfoundland bitch, aged thirteen months. Examination six hours after death:

The internal changes were confined almost entirely to the chest. On opening this, the animal being placed on the back, we found layers of yellowish, friable, false membrane, varying in tenacity, stretched across and around the sack containing the heart. Adhesions of this character existed on both sides of the chest, and were bathed in a yellowish grumous fluid or serum, which proved

to be highly albuminous, and charged with shreds of solid deposit. Both lungs were found adhering firmly to the pleura, and in attempting to pass the hands round the large posterior lobes, we found it extremely difficult to detach the diseased portions from the ribs.

The false membranes were found adhering closely to the pleura covering the lung, and to the pulmonary substance itself; and the former—the pleura—mottled in color, with more or less marked papillary or warty looking eminences.

This development showed that the disease had been one of unusual virulence.

There was considerable fluid around the lungs, the quantity of which we could not estimate, as it was found impossible to separate it from the shreds of lymph and false membrane in which it was held. Examination revealed a large quantity of pus cells, and a portion of the fluid placed in a tumbler partially gelatinized on prolonged exposure to the air. The lower portion of the right lung was gangrenous and abscesses were found therein, which gave out a highly offensive odor on opening. The left lung had a small gangrenous spot upon the inner posterior portion of the apex.

On removing the lungs, both were found to present a badly diseased appearance, the right being the worst. The collapsed portions with the normal pink color, denoting healthy tissue, were extremely small, showing the animal possessed more than ordinary vitality to have existed with so little means of æration of blood, as long as circumstances indicated she did. On cutting into the hard and mottled diseased portions, a very peculiar marbled appearance was presented: the substance of the lobules being solid and of a darkened color, while the tissue between the lobes was yellowish, more or less dotted with red points. The gradation from healthy to diseased tissue was very marked, showing first, lobules slightly infiltrated with semi-liquid serum, followed by those more thickened, and of a lighter red color showing the more recent deposits, and lastly the thoroughly consolidated portions. Now we find the lung substance entirely broken down, the more solid portions detached and imbedded in the cavities of the diseased tissue, acting as foreign bodies, and hastening gangrene. The adimssion of air through the air passages into the cavities by dissolution of lung

tissue, accounts for the cavernous sounds that may be sometimes detected in these diseases, and also for the intolerable fetor of the breath so often present, and for the discharges from the nose, matter being forced by coughing into the posterior portions of the throat, and there lodged, finding its way out through the nostrils by the attempts of the animal to expel it; besides the nasal passages become diseased through sympathy, and contact with the morbific matter thrown off during exhalation.

The air passages were found coated with patches of false membrane, and bathed in purulent matter throughout their entire length.

The heart was contracted and pale, containing a little very dark semifluid blood in both the left auricle and ventricle. The pericardium (heart's sack) was slightly thickened by deposits around it, and contained a slight excess of serum.

The brain presented no abnormal characteristics. There was marked and diffused redness of the stomach, and the large intestine contained a little dark fetid, slightly blood-stained excrement. No other pathological changes were found in the digestive apparatus. The tissues generally were bloodless.

I know not whether I have made this intelligible to the general reader or not: at all events it may be of some value to my professional brethren, no small number of whom are ardent sportsmen.

Although difficult to instruct the uninitiated in the manner of making a diagnosis, it must be attempted. We first inquire what signals of its existence inflammation holds out; and how far we, not having the power of seeing what is going on within the cavity of the chest, may nevertheless ascertain the important processes which are there transacted.

If the ear be applied to the chest, and the portion of lung adjacent to that surface happen to be in the first stage of inflammation, you hear a peculiar crackling sound; the smallest and finest possible kind of crepitation, which has been happily illustrated by saying that it resembles the multitudinous little crackling explosions made by salt when it is scattered over red hot coals; another resemblance is, like the rumpling of a very fine piece of parchment, or like the sound produced by rubbing a lock of your hair between your thumb and finger close to the ear. This is the crepitation or

crackling of pneumonia, and may be heard only in a very limited spot in the beginning. We cannot too highly value this simple symptom, as it gives the earliest and surest intimation that the disease has begun.

When you catch the inflammation in its earliest stage the minute crepitation which announces the commencing engorgement of the part is heard mingled with the ordinary sounds of respiration. This obscures the material sound, though it does not yet entirely cover it—but as the inflammation advances, the crackling becomes more pronounced, until at length it totally supersedes it. So long as the natural sounds of respiration prevail over the crackling, we may conclude the inflammation is slight. But the crackling does not remain long in any part. As the case proceeds, the sound is less and less hard, and at length not heard at all in that spot; and it may be succeeded by one of two very different sounds. Its place may be taken by the respiratory murmur again, in which case it denotes the termination of the inflammation. But the crackling may cease, and either no sound at all be heard in its stead, or a *new* morbid sound which I will presently describe; and this teaches us with absolute certainty, that the disease is growing more severe and serious; that the lung is becoming or has become *hepatized*, that is, solidified, liver-like.

The *new* sound is audible as a whiffing, like air blown through a quill. Little gusts of air are puffed in and out; often most distinct at the termination of a slight cough. The hepatized lung allows the air to pass in the larger bronchial tubes, but has closed up the smaller ones and the lung vesicles, wherefore the whiffing, blowing, gusty sound of the breath as it enters and departs from the large bronchi, which still remain open, and *bronchial respiration*, as the new sound is called, is heard. By means of these three sounds, and a knowledge of the position of the lungs, you may easily master their condition by the sounds heard as you apply your ear to different portions of the chest.

In the majority of cases, the commencement of inflammation of the lungs is marked by the animal's shivering, or having a chill, followed by an increase of temperature of the body, and increased frequency of pulse. A little later difficulty of breathing is apparent, and the animal begins coughing. At first the cough may be

dry, but it is attended with a very characteristic expectoration. The difficulty of breathing is sometimes slight in the outset; sometimes severe.

Apart therefore, from the physical signs, we may say that the usual symptoms of this disease are pain, more or less severe, difficulty of breathing; cough; a peculiar expectoration; loss of appetite; and fever, alternated with shiverings; though the latter are usually nervous in character, rather than the result of cold.

As the disorder progresses we have discharges of thick tenacious mucus, which becomes encrusted upon the lips and nose; the eyes become rheumy and blood-shot, the lids being frequently agglutinated, especially in the morning; and the animal seeks repose, and is disinclined to move. Farther on we find the cough becomes less frequent, or it may cease entirely. It has no particular character at any time, and affords little information, though it is usually dry at the outset; but in a few hours is accompanied by expectoration of a yellowish frothy mucus which, later, becomes streaked with tawny rust-colored spots, which evidently constitute the greater portion of the expectoration. The discharge from the nostrils undergoes the same changes. Ulcers appear upon the lips in this stage, and the animal utters cries of pain, particularly after pressure upon the chest. Emaciation supervenes, the sufferer grows thinner and weaker, until, no longer able to rise, it remains lying upon the side. The breath now has a highly offensive odor, which might have been remarked in a less degree at an earlier stage of the disease; diarrhœa supervenes, and the fæcal discharges have the peculiar fetid smell before noticed, in speaking of post-mortem appearances. This is the last stage, which closes with death.

Having thus given a crude outline, I will explain some of the points further:

At the outset, the expectoration and nasal discharges consist of clear mucus, or else there is no secretion; but the second or third day generally, they assume the characteristic appearance: i. e., they come to be composed of mucus intimately united and combined with blood, though it may be streaked with blood at first, it generally is blood and mucus at the outset, and is always at the expiration of twenty-four hours. Even when this trans-

parent mucus is *yellow*, the color is due to blood, and the discharges are not as the vets. claim, from the stomach, but the lungs. If to water rendered viscid by dissolving a certain quantity of gum in it, sufficient to give it the consistency of mucus, you add blood, drop by drop, you will obtain, in succession, all the shades of color that are presented in the discharges from the mouth and nasal passages in this disease: first a yellow tinge; then a tawny yellow which loses itself in red, and comes to represent the color of the rust of iron, and lastly intensely red. A part of the discharges from the nose, however, the clearest portions, may come from the mucous membrane of the nostrils and fauces, induced by the irritation of the lung matter. If a little of this discharge be taken up on a stick, and it runs readily, or even slowly, we may hope that the disease has not passed the first stage. But if it be thick, viscid, or jelly like, and hard to get rid of when so taken, we may fear that the second stage is reached.

Although these rust or orange-colored discharges are commonly present during the more active period of this disease, you ought to be aware that they do not *constantly* accompany it. Sometimes they are like those of a catarrh; and sometimes there is scarcely any at all.

Having given you an idea of the symptoms individually, I must now hastily glance over them collectively, as they must be studied together; and some will be found to confirm or correct the indications that might be drawn from others.

The first symptom is usually a slight difficulty in breathing, the animal moving gingerly, as with pain, or humoring one side more than another in lying down. Make a movement as though to grasp his sides, and he will likely follow the motion of your hand, with his muzzle close to it, fearing he may be hurt; the eye also shows suffering; this may, or may not have been preceded by shivering,—rigors; and he coughs slightly, but without expectorating. At this period the ear applied to his chest and back may generally detect the slight crepitating sound before mentioned, and some fever will be noticed withal. The second or third day new symptoms appear. The expectoration and nasal discharge, heretofore absent, or catarrhal in character become characteristic; being at first moderately viscid, and having a degree of color proportionate to the variable

quantity of blood it contains. The minute crepitation increases and drowns or supersedes the respiratory murmur, and less symptoms of pain are noticed, but he prefers to lie flat on his belly to his side, or lies upon one side only, resisting all attempts at being turned over and made to lie on the other.

In this condition of pneumonia, though the disease may be severe, the inflammation is yet in its primary stage. It often remains stationary for a while, then recedes, and terminates by resolution.

As soon as this stage is diagnosed, administer a full dose of calomel, and eight or ten grains, with half as much quinine, and five grains of jalap. See that this operates thoroughly, following with sweet oil (8*a*) if necessary. Also administer one or two drops of Norwood's tincture of veratrum viride, one-half drachm to a drachm of nitre, and four or five grains of muriate of ammonia at a dose (49*a*) in water; let this be given every hour, watching the pulse and the fever. As soon as the pulse becomes steady even if it be not quite normal, and the fever is allayed, give the doses only once in four hours. This carefully followed, the animal being kept in a moderately warm, dry, and *airy* room, will usually cut the disease short at once. If it does not, begin the use of carbonate of ammonia in six grain doses, (50) with enemas containing small doses of spirits, six grains every four hours; use on chest liniment as per prescription No. 52.

Second Stage.—If the inflammatory engorgement does not cease by resolution, and the symptoms that announce it are exasperated, we must expect the second stage to be established. And we may be certain that it exists when we observe the following phenomena: the breathing becomes more and more constrained, short, accelerated; if the animal cries out with pain, he does it in a short, panting manner, in a series of short, quick *yaps* between the inspirations. The discharges acquire such a degree of viscidity that they can no longer be detached from the stick, even by shaking it violently; the sound afforded by tapping the diseased side with the fingers is decidedly dull,—no resonance as in health; at first we hear a little of the minute crepitation, without the admixture of the natural sounds of respiration; then that little crepitation ceases, and either no sound at all is perceived by the ear, or in the part where

there is dullness on tapping with the finger, bronchial respiration is heard. The animal continues to lie on the belly or support himself with his fore-legs. In this degree of the disease the prognosis is always uncertain. The animal often sinks rapidly and dies of asphyxia. We now begin a still more stimulant treatment, using the veratrum as before but in larger doses and adding tincture of aconite root, one drop to each dose (49*b*). Enemas of brandy, and beef tea must be given, as well as by the mouth, in order to sustain the sufferer. We also give the turpentine and egg mixture by the mouth (54), and bark tea and the fresh solution of acetate of ammonia (No. 55), quinine, leptandrin and powdered iron too, in large doses with sub-carbonate of bismuth if there is vomiting. Small doses of quinine do not answer the purpose, exerting an influence upon the heart that we do not desire. A blister too will be of value applied over the affected side, though the liniment will perhaps do. If there is delirium, look out for trouble, for the animal will not only be difficult to manage, but the disease may be looked upon as fatal. Now no opium must be given, but full doses of hyoscyamus, cannabis indica, and similar sedatives may be used instead.

When resolution begins to take place, we hear afresh the small crepitation, at first alone, then mixed with the natural respiratory murmur, which in its turn becomes alone audible. The discharges return to their catarrhal character. In the meantime the dyspnœa and fever diminish, and then cease entirely.

It would doubtless be very interesting to determine, in a given case, whether the lung of the sufferer was in the second or third stage of inflammation. But there are no certain means for making this distinction. We may guess that such is the fact when the discharges assume a prune juice color. The appearance of diarrhœa is not to be depended on, as it appears frequently, with the inception of the second stage. However, the discharges will not help us much ; for sometimes the lung may be in a state of suppuration on the fifth day ; and again it may be found in a state of red hepitization as late as the twentieth or twenty-second day.

When pneumonia passes into gangrene, which is much oftener the case with dogs than is supposed, the discharges become of a greenish, or reddish, or dirty grey color, and exhale a pecu-

liar fetid smell. We can little hope to save the life of the animal in case this becomes marked.

Before leaving this subject, let me apologize for its length. But the disease has never before been properly written up, so far as known to me, or its pathological characters noticed. I have made this brief, too brief considering the subject. The popular writers on diseases of canines are, unfortunately, all in the dark, which is to be regretted. Mayhew, who is perhaps as much read by sportsmen as any author, gives no rationale of the disease, but deals in generalities, which show he was entirely at sea, and that he knew nothing of its pathology; or indeed of hardly any other disease he attempts to treat of. The symptoms he gives, however, will be noticed as almost identical with those of pleuro-pneumonia.

Splenic Fever.—This is another disease which in its various stages is either called distemper, or mistaken for inflammation of the bowels. There is the same characteristic discharge from the nose, and diarrhœa is often present. The mucous membranes of the mouth are pallid, the flanks drawn in, the animal nervous, and finally paralysis of the hind quarters supervenes.

I can give nothing of value concerning the pathology of the disease, except that the spleen and kidneys are enormously enlarged, and the grey matter of the upper portions of the spinal cord takes on ulceration and suppuration. I am indebted to two medical gentlemen of the U. S. Army for the little knowledge I possess on this subject, and that little cannot well be given here. The disease is called splenic fever, because that organ shows greater changes than any other. From the symptoms as given me, I should think this might be the *true distemper*. Thus far cases have been noticed only in New Mexico, Texas, and Arizona.

The indications would seem to be a tonic treatment. *Opium aggravates the disease, it inevitably proving fatal where this drug is administered.* The pathology of these two diseases proves that vaccination is useless as a preventive.

DISEASES OF THE NERVOUS SYSTEM.

Epilepsy; Convulsions.—Epilepsy, Convulsions, or Fits may arise from a variety of causes, the most common of which are intestinal worms, rage habit, defective nutrition; under which may

be classed bad food and under feeding, or over feeding and consequent want of assimilation; rickets, obstructions of the bowels, malformation of one side of the head, improper treatment of skin diseases, prolonged retention of urine, disease of the brain or spinal column, as the result of mechanical injury, or as a sequel to splenic fever, excess of venery, heredity, etc., etc.

With this array of causes, to which much might be added, it would appear as though all attempts to treat this disease would necessarily be futile.

The leading symptoms of this disease are, a temporary suspension of consciousness, with clonic spasms, recurring at intervals.

The dog, in apparent enjoyment of perfect health, may sometimes give notice of an attack by a peculiar short yelp, when he falls instantly to the ground, senseless and convulsed; again the seizure is only known by finding the animal prostrate, he having fallen suddenly, dropping in his tracks as though fatally shot. He strains and struggles violently, his breathing is embarrassed or suspended; he foams at the mouth; a choking sound is heard in his windpipe; and he appears to be at the point of death from asphyxia—and indeed so dies sometimes. But presently, and by degrees these alarming phenomena diminish, and at length cease; the animal is left exhausted, heavy, stupid and comatose: but his life is no longer threatened. And in a short time, he is once more to all appearances perfectly well. The same train of morbid phenomena recur, however, again and again, at different, and mostly at irregular intervals. This is a brief description of the most ordinary forms of epilepsy.

The suddenness of the attack is remarkable: in an instant, when least expected by the animal or his master, in the midst of a point, or a movement perhaps, the change takes place; and the poor animal is stretched foaming, struggling, and insensible upon the earth. The muscular convulsions are strong, irregular, and often universal; and one side of the body is usually more agitated than the other. The integument of the forehead above the eyes is usually puckered into folds; the eyes sometimes quiver and roll about, sometimes are fixed and staring, sometimes are turned up beneath the lids, so that the whites alone are visible; the tongue is thrust through the sides of the jaws, perhaps bitten, often

severely; and the foam which issues from the mouth is reddened by blood. It often happens too, that the urine and excrement are expelled during the violence of the spasm.

When the convulsive paroxysm is over, the animal appears buried in deep sleep, and it might be supposed that this was the result of exhaustion; but there is something more than this; the animal passes into a state of incomplete coma, or rather the insensibility continues. When he wakes, he appears dizzy and confused; by degrees, however, he resumes his ordinary appearance and condition.

As may be supposed, so much irregular contraction of the muscles of voluntary motion is not likely to occur without some derangement or modification of the functions of the circulation. The breathing is irregular, gasping, or arrested. The heart palpitates violently; the pulse becomes frequent and feeble; and sometimes ceases to be tangible during the height of the fit, and is to be felt again as the spasms subside. The inside of the lips becomes blue and pallid, and the eyes blood-shot, the veins being visibly distended.

This is one form, the most severe and the most common, as well as the best marked, in which an epileptic attack occurs.

But there is a large class of cases in which the symptoms are much more mild. There is very slight and transient, or even no convulsion at all; no signs of turgescence about the organs of the face; no foaming at the mouth; no quivering of the eyes; but a sudden suspension of consciousness, a short period of insensibility, a fixed gaze, a totter perhaps, a look of confusion or wonderment but the animal does not fall. This is momentary; consciousness quickly returns; the dog resumes the action in which he has been previously engaged, and is ofttimes not aware that he has been interrupted. This constitutes the mildest form of the disease.

Between the two extremes there are many links of gradation; but they are all epilepsy.

On discovering this disease in your animal, no matter how slight the attack, if not at home take him there; and at once cast about for the cause. If you are convinced it arises from any of the ordinary diseases, treat them. Whatever you do, at once evacuate the bowels, and keep them slightly lax, and begin a bland

and nutritious diet. If no cause can be assigned, the best treatment consists of tonics, as iron, the barks, quinine, mineral acids, etc.; with these may be combined small doses of musk, assafœtida, camphor, or other anti-spasmodics. Muriate of ammonia, oftimes seems to be a specific, as does the fluid extract of the Australian fever-tree—*Eucalyptus.* No definite treatment can be assigned; you must work out the problem for yourself. See 41, 42, 43, 56, 59.

Opium, bleeding, etc., are not to be thought of under any consideration. Do not put stones in the ear of the sufferer with expectation of a cure; it not unfrequently happens that some foreign body in the ear is the cause of the attack. Where the disease is the result of softening of the spinal cord or brain, it becomes hopeless; but it is more commonly the result of reflex irritation.

All forms of so-called fits, as they occur in dogs, may be referred to this disorder. I may remark, too, that tape worm is the most frequent cause of the disease.

Chorea Sancti Viti.—Another disease of a spasmodic kind, and essentially belonging to the nervous system, is *Chorea—St. Vitus' dance.* This is far less serious in some respects than the disease we have just had under consideration; but it is very unpleasant to possess an animal suffering from this disorder.

The pathology of this disease is obscure. None of the anatomical researches hitherto made upon the subject, nor any study of its symptoms, give us any positive information as to the real point whence the morbid irritation of the motor nerves proceeds. The result of the somewhat rare autopsies which have been either negative, or else so discordant than any lesion discovered in the central organs of the nervous system could not be referred to the chorea, but rather to some accidental complication, or to the disease of which the patient died. The general implication of nearly all the cerebro-spinal motor nerves altogether contradicts the supposition that the origin of the disease lies in the peripheral nerves, as has been claimed. The complete integrity of the other cerebral functions makes it improbable that the movements of the chorea originate in the brain. On the other hand, certain pauses in the muscular restlessness which occur, particularly during sleep, would imply that the motor influence is derived from the

brain rather than the spinal marrow. There is no good ground for the hypothesis that chorea is dependent upon a disproportion in size between the spinal canal and the spinal marrow, or upon inflammation of the vertebræ, or upon spinal irritation, for we do not even know that the seat of the malady really lies in the spinal marrow.

The prominent symptom of this disorder is, an irregular and involuntary clonic contraction of some of the voluntary muscles, which, however, are not wholly or constantly withdrawn from the government of the will. In epilepsy with convulsive spasm, we find suspension of mental functions; a temporary interruption of consciousness, and therefore of volition. But in chorea there is no loss of consciousness; no defect of volition. The ordinary movements of the body can be performed in some degree, under the direction of the will; but it would seem as if some other power wantonly interfered to excite them where they are not needed, to render them unsteady and imperfect, and to arrest natural action. The symptoms then, are involuntary movements and twitching of the muscles, which may vary more or less according to circumstances.

The cause of the disease being unknown, we are largely in the dark as to treatment. As it so frequently results as a sequel to distemper (?) and inflammation of the bowels, we may look upon it as due in part to defective nutrition; we therefore prescribe tonics and nervines. Of those drugs which combine both properties, the following are the best; valerianate of quinine, of iron and zinc; erythroxylon coca; iodoform, bromide of ammonium, etc. These may each be tried as occasion demands. The happiest results are frequently had from the use of Hubbel's elixir of valerianate of ammonia, and the mineral acids, combined with the tonic barks.

N. B. Both chorea and epilepsy may be frequently traced to the breeding of the parent or parents at an immature age.

Rabies Canina; Lyssa; Hydrophobia.—It is much to be regretted that dogs suspected of rabies are usually quickly destroyed. When a person has been bitten by a dog or any other animal suspected to be rabid, the beast ought by no means to be killed, but to be secured, and kept under surveillance, and suffered, if it shall

so happen, to die of the disease. If he does not die, in other words, if he is not rabid, that will soon appear; and the mind of the person bitten will then be relieved from a very painful state of suspense and uncertainty, which might otherwise have haunted him for months or years. Again, it would reduce the number of deaths from hydrophobia, though not rabies, as fewer persons would die of fear, brought on by no contagion, and no disease, except as caused by their own overwrought fancies. If the dog dies mad, the injured person will be no worse off than if the animal had been killed in the first instance. "Give a dog a bad name," says the proverb, "and hang him;" and it is literally so with the imputation of madness. A poor wretch of a dog is perhaps ill, or weary, or cross, or he may have been worried already by mischievous boys; the cry of mad dog is raised; and then he can expect no mercy. There are gross errors prevalent with regard to the signs of rabies in the dog. If a dog be seen in a fit in the street, some person charitably offers a conjecture that perhaps he may be mad; the next person has no doubt of it; and then woe to that dog! Now a rabid animal never has convulsions: the existence of epilepsy is a clear proof that there is no rabies. Again, it is a very common belief, that a rabid dog, like a hydrophobic man, will shun water; and if he takes to a river, it is thought to be conclusive evidence that he is not mad. But the truth is, that the disease, in the quadruped, cannot be called *hydrophobia*: there is no dread of water, but an unquenchable thirst; no spasm attending the effort to swallow, but sometimes an inability to perform the act from paralysis of the muscles about the jaws and throat. They will stand lapping, without getting any of the liquid down.

There is another superstitious opinion not at all uncommon, viz., that healthy dogs recognize one that is mad, and fear him, and run away from his presence, in consequence of some mysterious and wonderful instinct, warning them of danger. This is quite unfounded. Equally mistaken are the notions that the mad dog exhales a peculiar and offensive smell, and that he may be known by his running with his tail between his legs; except as Mr. Youatt says, when weary and exhausted, he is seeking his home.

"The earliest symptoms of rabies in the dog, are sullenness,

fidgetiness, continual shifting of the posture, a steadfast gaze expressive of suspicion, an earnest licking of some part on which a scar may generally be found. If the ear be the affected part, the animal is incessantly and violently scratching it. If it be the foot he gnaws it till the integuments are destroyed.

"Occasional vomiting and a deepened appetite are very early noticeable. The dog will pick up and swallow most anything that comes in his way, even his own excrement. Then the animal becomes irascible; flies fiercely at strangers; is impatient of correction; seizes the whip or stick; quarrels with his own companions; demolishes his bed; and if chained up, makes violent efforts to escape, tearing his kennel to pieces with his teeth. If he be at large, he usually attacks only those dogs that come in his way; but if he be naturally ferocious, he will diligently and perseveringly seek his enemy."

According to Mr. Youatt, the disease is principally propagated by the fighting dogs in towns; and by the curs in the country; by those dogs, therefore, which minister to the vices of the lower classes in town and country respectively. He maintains that if a well enforced quarantine could be established, and every dog in the kingdom confined separately for seven months, the disease might be extirpated in Great Britain. This opinion is founded of course on the belief that rabies never originates, any more than small-pox does, *spontaneously*, but is always propagated by the specific virus. As corroborative of this, authors have cited the statements that rabies and hydrophobia are unknown in some countries. The most common statements so urged are that South America is, or was a stranger to this disease. That it was imported into Jamaica after that island had enjoyed an immunity from the disease for at least fifty years previously; that the most wretched curs abound in the island of Madeira, that are afflicted with almost every disease, tormented by flies, and heat, and thirst, and famine, yet no rabid dogs had ever been seen there; and that, on the contrary, the loss of human life from hydrophobia in Prussia, between the years 1826 and '36, reached the number of 1666. With regard to the geographical limits of this disease, I shall have occasion to speak further on.

Very early in the disease, the expression of the animal's coun-

tenance is remarkably changed; the eyes glisten, there is slight strabismus,* and twitchings of the face come on. About the second day a considerable discharge of saliva commences; but this does not continue more than ten or twelve hours, and is succeeded by insatiable thirst; the dog is incessantly drinking, or attempting to drink, plunging his muzzle into the water. When the flow of saliva has ceased, he appears to be annoyed by some viscid matter in his fauces; and in the most eager and extraordinary manner he works with his paws at the corners of his mouth, to get rid of it; and while thus employed he frequently loses his balance and rolls over.

A loss of power over the voluntary muscles is next observed. It begins with the lower jaw, which hangs down, and the mouth is partially open; but by a sudden effort the dog can sometimes close it, though occasionally the paralysis is complete. The tongue is affected in a less degree. The dog is able to raise it in the act of lapping; but the mouth is not sufficiently closed to retain the water. Therefore, while he hangs over the fluid, eagerly lapping for several minutes, it is very little or not at all diminished. The paralysis often attacks the loins and extremities also. The animal staggers about, and frequently falls. Previously to this he is in almost incessant action. Mr. Youatt fancies that the dog is subject to what we call spectral illusions. He says "he starts up and gazes eagerly at some real or imaginary object. He appears to be tracing the path of something floating around him, or he fixes his eye intently upon some spot in the wall, and suddenly plunges at it; then his eyes close, and his head droops."

Frequently, with his head erect, the dog utters a short and very peculiar howl; or if he barks, it is a hoarse, inward sound, altogether dissimilar from his usual tone, and generally terminating with this characteristic howl. Respiration is always affected; often the breathing is very laborious; and the *inspiration* is attended with a very singular grating, choking noise. On the fourth, fifth, or sixth day of the disease, usually, he dies: occasionally in slight convulsions, but oftener without a struggle.

Mr. Youatt gives a detailed account of the appearances met with after death in the carcasses of rabid dogs. They are not very constant or distinctive. The most curious and uniform con-

* Strabismus—cross-eyed.

sist in the presence of unnatural ingesta in the stomach: straw, hay, hair, horse-dung, earth. Sometimes the stomach is perfectly distended with these substances; and when it contains none of them, there is a fluid of the deepest chocolate color mixed with olive; or still darker, like coffee; and when neither the unnatural ingesta nor the dark fluid appear, it will be found, says Mr. Y., upon careful inquiry.

I believe that Mr. Youatt's opinion, already mentioned, of the cause of rabies in dogs, and in all creatures—viz., that it always results from the introduction of a specific virus into the system—I believe this opinion is not commonly entertained. Most people think that the disease is generated *de novo*, in the dog at least; and causes have been assigned for it which certainly are not the true nor the sole causes. Thus hydrophobia in the dog has been ascribed to extreme heat of the weather. It is thought by many to be particularly likely to occur in the dog-days; and to be as Mr. Mayo observes, "a sort of dog-lunacy having the same relation to Sirius that insanity has to the moon; which, indeed, in another sense is probably true." Many cautions are annually put forth, about that period, for muzzling dogs, and so on; very good and proper advice, but if those who have noted the statistics of the disease may be depended upon, it would seem as appropriate at one period of the year as at another. Rabies occurs as often, if not oftener, in the spring, in the autumn, and even in the winter, as it does in summer. M. Trolliet, who wrote an interesting essay on rabies, states that in January, which is the coldest, and August, which is the hottest month in the year, are the very months which furnish the fewest examples of the disease. The disorder has often been ascribed to want of water in hot weather, and sometimes to want of food. But MM. Dupuytren, Breschet and Magendie, have caused both dogs and cats to perish with hunger and thirst, without producing the smallest approach to a state of rabies.* At the Veterinary School at Alfort, three dogs were subjected to some very cruel but decisive experiments. It was during the heat of

* Attempts to produce hydrophobia artificially by starving dogs have been ineffectually made by Radi, Bourgelat, and Ménécier also. Pillnax observed during one of the severer epizootics in Vienna, that the greater number of affected dogs belonged to owners in good circumstances in life, enjoying therefore, for the most part, good care and food.

summer, and they were all chained in the full blaze of the sun. To one salted meat was given; to the second, water only; and to the third neither food nor drink. They all died; but none of them became rabid. Nor does the supposition that the disorder has some connection with the period of sexual heat in these animals appear to have any better foundation. For, the island of Sark in the English Channel has never had a case of hydrophobia, although it has a large canine population, which is entirely made up of the masculine gender: the opposite sex are forbidden by law.

My own opinion on this matter is, that Mr. Youatt's doctrine is by far the most probable one; that rabies never occurs except from inoculation of the specific virus. It has never been proved, and indeed it would scarcely be susceptible of proof, that the disease ever breaks out spontaneously; for in nineteen cases out of twenty, perhaps, we trace the bite or the fray in which the inoculation has been effected.

With regard to the geographical distribution of the disease, *no land or climate is free from hydrophobia*. The malady prevails just the same in countries where dogs live in perfect freedom, for instance in the East, in Algiers, Central Africa, China, Cochin China, South America, and the Arctic Regions—as in every part of Europe and America, where dogs, being domesticated, are deprived more or less of their freedom. In Europe hydrophobia is said to prevail most extensively in Germany, France, Holland, the north of Italy, and in England.

On the other hand, as must appear evident, the greatest discretion should be exercised in crediting any report of the occurrence of hydrophobia in uncivilized and imperfectly known lands.

Virchow has stated, with a certain degree of reserve, it is true, that among the countries reported to be least frequently visited are Kamtschatka, Greenland, portions of Sweden and Denmark, the southern coast of the Mediterranean, the whole of Africa, and the southern portions of Asia and America. Boudin appears to confirm the view that hydrophobia, although of such frequent occurrence in Europe, is much more rare in the tropics and the polar regions.

As opposed to these, may be given a few more recent observations.

In February, 1860, hydrophobia broke out as an epizootic in Upernavik, the northernmost settlement in Greenland (72° N. latitude). The thermometer stood then for some time at 25° F. below zero, and the favorable condition of the sledge roads contributed greatly to the spread of the disorder. In like manner, in 1863, hydrophobia prevailed in epizootic form in the northern portions of Greenland, completely destroying all the dogs in certain districts.

In Missouri and Ohio, hydrophobia prevailed so extensively in 1860, that cattle owners solicited reimbursement from the national treasury on account of their great loss in cattle.

In Constantinople, hydrophobia rages in some years—*e. g.* 1839, 1868—very widely, and is not unfrequent, though statements have been promulgated to the contrary. In Athens it prevailed in epizootic form in 1866. The occurrence of hydrophobia in Asia Minor and Crete has been recounted by Cælius Aurelianus; and the disease was well known to the ancient Hebrews. Notwithstanding former reports, it is now known that hydrophobia frequently occurs in Algiers, and its appearance in Egypt has been repeatedly verified.

The disease is found moreover in Bolivia, Paraguay, Brazil, British Guiana, Cape of Good Hope, Japan, and in the East and West Indies.

It will be seen that the study of the geographical distribution of the disease leads us to deny *in toto* the theory of its spontaneous origin.

A great deal of nonsensical trash, purporting to emanate from authority, has appeared in the non-medical press of late years. Perhaps among the most notable, is one purporting to describe two forms of "madness" which are designated as "hydrophobia" and "distemper" madness, "which closely resemble each other." The fallacy of the article will be noticed from the fact that the dog when suffering from rabies is stated to be "violently insane only on the approximation of water," and that post-mortem reveals "intense inflammation of the brain extending to the throat and lungs." The whole article is drawn from an old work of the 18th century entitled "A SPORTSMAN'S DICTIONARY,"* and is taken

* This work treats entirely of hounds and horses.

from an article entitled "THE SEVEN KINDS OF MADNESS." This same article recommends the inoculation with the "matter of the *cow pock* to prevent distemper and distemper madness." As the date of publication of the work is 1769, it will be observed that the virus was thought of in this connection long before the days of Jenner, and vaccination as a prophylactic of small-pox.

The latest researches on hydrophobia in the human subject, are given by the eminent pathologist, Dr. Felix von Niemeyer, as follows:

"Most cases of lyssa that have been well observed and described closely resemble each other. As it is universally assumed that morbid processes due to the action of a specific poison run their course with symptoms which only vary through personal idiosyncrasy and the variable intensity with which the poison has acted, those reports of lyssa humana differing from our description, in which the characteristic symptoms and their peculiar sequence are not mentioned or really did not occur, must arouse the suspicion that they were badly observed, or that there was an error of diagnosis.

"Opinions differ as to the length of the period of incubation. The statement that hydrophobia has made its appearance twenty or thirty years after the bite of a rabid animal, as well as those according to which the disease has broken out as early as the second or third day, are probably dependent upon imperfect observation. The shortest term of incubation appears to be about eight or ten days; the longest twelve or thirteen months. In the majority of instances, the malady breaks out in about forty days after the reception of the bite. The reasons for this inequality of period are obscure. There are numerous instances in which, towards the end of the stage of incubation, and a day or two before the onset of the malady, peculiar alterations have been observed in the wound or its scar, for the wound has generally healed by this time. The bite assumes a livid color, grows painful, and discharges a yellow ichor. The scar which has generally soon formed without remarkable symptoms, grows bluish red, swells, and sometimes breaks out afresh. The patient also complains of painful sensations, shooting centripetally from the wound or scar, or of a

sense of numbness in the bitten member. These disturbances at the point of entry of the virus are very often wanting.

"The first or prodromic stage of the disease is marked by a peculiar depression of the patient's spirits, amounting to an acute melancholy. The patient seeks solitude, is timid and apprehensive, and either sits motionless and plunged in deep abstraction, or else is unable to rest at all. Some complain of an indefinite feeling of dread and oppression, and sigh repeatedly without any reason for so doing. Some are preoccupied with sad forebodings, or, if aware of their perilous condition, are incessantly tormented by dread of the onset of the malady. Sleep is restless and broken by frightful dreams. The precursory signs of the spasmodic disturbance of respiration, afterwards to attain so terrible an intensity, soon supervene. The patient complains of pressure in the pericardium,—before the heart, fore part of the region of the thorax—draws profound, sighing inspirations, the diaphragm is depressed, the epigastrium bulges, and the shoulders are drawn upward. This spasmodic breathing is the first token of the tonic spasm of the muscles of inspiration which cause such frightful torments in the second stage of the disease.

"The prodromic term having lasted two or three days, the second or furious stage begins. Its onset is marked by a fit of choking, suddenly induced by an attempt to drink, which renders the patient incapable of swallowing a drop.

"The moment the fluid enters the mouth and the motion of swallowing is made, spasmodic inspiratory motions begin; the thorax rises interruptedly, and remains in the position of deepest inspiration for ten or twenty seconds. During this time the features betray anxiety and terror, the eyes protrude, head and shoulders are thrown back, then comes an expiration, with which the attack passes off. I have satisfied myself that the inspiratory muscles, as well as those of the pharynx, are implicated in these seizures. This combination of spasmodic contractions in both of these sets of muscles, is a frequent symptom; it always appears in the straining preceding vomiting, as well as in the retching following irritation of the pharynx by the finger, etc. Retching is always accompanied by a feeling of suffocation, from the contraction of the inspiratory muscles complicating the spasm of the

pharynx; and we are justified in giving the name of retching-fits to these spasms, which form the pathognomonic—characteristic—symptom of lyssa, and are given in every well-recorded case.

"The dread of water is entirely due to the dreadful experience of the patient on trying to drink. Reports of cases where hydrophobia is given as a primary symptom are worthy of no credence. It is a curious fact that, at first, the act of swallowing solid food is not attended by spasms. Even a draught of air on the skin, or touching anything cold, sudden irritation of the eye by dazzling, even sudden mental excitement or surprises, may induce attacks. According to my observation, the pharyngeal muscles do not participate in the reflex spasms induced by irritating other parts, as the mouth or palate. At the height of the disease, it appears as if attacks occurred from time to time without cause; but I think that these apparently spontaneous attacks must be regarded as reflex spasms, and be referred to the collections of tough mucus in the pharynx, or to the trickling into it of saliva. This supposition is based on the haste, and *abandon* with which the patient ejects saliva and mucus, and the attempts to introduce the finger far into the throat, for the purpose of removing mucus and sputa.

"Various authors name tetanic or epileptiform spasms among the symptoms of lyssa; but on careful examination, I have not been able to discover a case where the detailed description of the spasms fully convinced me that they were tetanic or eclamptic. It is nowhere stated that the muscles of the back were tense, except during the attacks, or that consciousness was lost during the general convulsions. In one of my patients there was opisthotonos*—he threw his hands and feet about, and pitched around, so that he frequently fell on the floor. But these symptoms reminded one far more of hysterical spasms, or of the actions of a tortured, despairing man.

"The above symptoms are soon accompanied by attacks of boundless rage, in which the patients are hard to manage, destroy all that comes in their way, strike, kick, scratch, and bite, if held fast, and not unfrequently kill themselves, if they are carelessly watched.

* Opisthotonos; bending of the body backwards.

"The biting, inarticulate howling, and barking sounds, are not made more frequently by a hydrophobic patient than by another madman in the maniacal stage of chronic cerebral disease.* The patient often warns his attendants between the fits, which seldom last longer than a quarter or half an hour, and begs pardon for his misbehavior towards them, and sets his worldly affairs in order, in perfect consciousness of the near approach of his end. The paroxysms of madness and convulsions, having steadily grown more frequent for two or three days, now begin to diminish in violence as the patient loses strength. Rarely, it happens that death occurs at the height of the malady, during a severe and long continued choking fit. The exhaustion and collapse usually augment from hour to hour; the voice grows hoarse and feeble, the respiration shallow, the pulse small, irregular, and very frequent, and death ensues with the signs of a general paralysis, which is sometimes preceded by a deceptive amelioration of the symptoms.

"It might be supposed that the attacks of madness occurring in lyssa were simply a result of the despair that would affect even a person not having this disease, if he suffered from retching at short intervals for a day or two. I once attended a patient suffering from severe pharyngitis, who, when I asked him to try and drink, hurled the glass from him, and acted like a madman.

"We find something like this too, in patients with croup or œdema glottidis. The fact, also, that sometimes patients of very temperate and resigned natures do not become maniacal would also favor this view. But there are some objections to it, especially the fact that, even in persons the most resigned, the absence of mania is one of the rarest exceptions, as well as the excessive height that the madness usually reaches in lyssa patients. It is certainly more probable that the madness in lyssa is not due to moral grounds, but is caused by a propagation of the excessively increased morbid excitability of the motor-central apparatus of the pharyngeal and respiratory nerves to the central organs of the psychical functions. The symptoms of the mania have

* Romberg says, that a great inclination to bite, along with the absence of characteristic reflex spasms, in one of the diagnostic points between true lyssa and those hypochondriacal and maniacal conditions that the fear of the disease not unfrequently develops in persons that have been bitten. This state might be termed lyssaphobia.

many analogies to reflex spasms. Trifling mental excitement causes severe outbreaks, violent motions, and excited actions in maniacal patients, just as slight irritation of the skin causes reflex spasms in patients with tetanus.

"No lesions characteristic of the disease are found in the bodies of those who have died of hydrophobia. The most common conditions consist in intense rigor mortis,[1] extensive *post-mortem* hypostasis,[2] early putrefaction, intense staining of the endo-cardium[3] and walls of the vessels, hyperæmia[4] and serous exudation in the brain and its membranes, in the spinal marrow, in some of the sympathetic ganglia and nerves; hyperæmia and swelling of the mouth and fauces, both of which contain a collection of tenacious mucus; hypostasis[5] and œdema[6] of the posterior part of the lungs; engorgement of the walls of the stomach, and great abdominal glands. All these lesions, especially the injection of the nervous centres and nerves, upon which at times great stress has been laid as explanatory of the nature of the disease, are not constant, and, for the most part, seem to arise just prior to dissolution, in consequence of the disturbance suffered by the functions of respiration and circulation during the attacks described. In the cases which I have seen, autopsy[7] showed a decided swelling of the tonsils and follicular glands at the root of the tongue and the posterior wall of the pharynx, exactly corresponding with *Virchow's* observations."

I know not what I can say of the treatment of this terrible disease. There is no well authenticated case on record, that I am aware of, in which a hydrophobic person has recovered. As it has been, so it is still, "Ιατρας ἰαταί θανατος." The physician that heals is death. There can be no ground, therefore, for the re-

[1] *Rigor mortis*:—The muscular rigidity which takes place a few hours after death.

[2] *Hypostasis*:—Sediment. In this connection means a sediment or deposit in the urine occurring after death.

[3] *Endo-cardium*:—The serous membrane lining the interior of the heart.

[4] *Hyperæmia*:—Congestion of blood in a part.

[5] *Hypostasis*:—In this connection has reference to the sediment deposited from the serous fluid in the lungs.

[6] *Œdema*:—A minor degree of dropsical swelling.

[7] *Autopsy*:—*Post-mortem*: or as is generally applied, a thorough examination of a body after death. *Post-mortem* is oftener applied to a partial examination.

commendation of any especial drug, or form of medicine, nor even for any general plan of treatment, after the peculiar symptoms of the disease have once set in.

Of course those powerful remedial agencies that are in common use among medical men, have been fairly tried; copious blood letting, mercury, opium, arsenic, sugar of lead, oil of turpentine, the cold affusion even; and not only those, but the stronger poisons, as belladonna, stramonium, prussic acid, white hellebore, strychnia, cantharides, chloroform, ether, and nitrous oxide gas; and a no less end of less gigantic remedies; such as alkalies, especially ammonia, preparations of lead, zinc, copper and iron; electricity and galvanism, tobacco juice, lobelia, guaco, the mineral acids, violent exercise; and if we take into account the substances administered to the brute also, we may increase the list by the alisma plantago, sentellaria, box, and rue, all of which at one time or another, have been vaunted as successful remedies, veratrum, sabadilla, vicunas and rattlesnake poison.

The difficulty of swallowing fluids, and ofttimes of swallowing at all, is a serious obstacle to the use of internal remedies. The injection of medicines into the rectum, under the skin, and in the veins has been tried. Magendie hoped that he had discovered a cure, in first largely bleeding the patient, and then injecting his patient with a corresponding quantity of warm water; but it has always happened with this, and with other promising experiments, that just as the patient seemed about to recover, he has died. The nervous irritability has in rare cases been relieved by the hypodermic injection of morphia; curare has also been tried with more favorable results, and would seem to indicate that it possesses the greatest power of any drug over this disease. If I were the patient, I should urge large injections of curare, as nothing can be lost by it, even if this poison be given far more boldly than it has ever been.

Tracheotomy has been recommended by Mr. Mayo, and numerous other physicians. But I should not expect the smallest advantage from the operation. Leaving out the question of spasm of the glottis, the patients do not die of *suffocation*, but *debility*.

As almost every drug that has ever been included in any pharmacopœia has been administered with the hope of checking the

disease, so a great number of medicines and measures have been praised as preventives. People have had great faith in sea bathing, and went to the sea coast to be ducked and half drowned every day for six weeks. Some of the specifics, as you may suppose, are secrets; and they who possess them, whether they believe in them or not is another matter, sell them at no cheap rate to those who, having been bitten by the dog, are weak enough to be bitten again by the quack. The composition of several of them has transpired; and they are found to consist either of ingredients the most insignificant or worthless, or of poisons of which the inefficacy has already been ascertained. Among those of the early days of medicine were burnt crabs, hyena's skin, liver of the rabid animal, tin and mithridate, the latter being the same as the *confectis damocratis*, which includes some eighty ingredients, among others, the bellies of lizards. The celebrated *pulvis antilyssus* which was introduced by Dr. Mead into the London pharmacopœia was a mixture of ash colored liverwort and black pepper; it was the brilliant discovery of one Dampier. Next came the famous "*East India medicine*," consisting of equal portions of native and factitious cinnabar made into a powder with musk, to be dissolved in arrack: this was also known as the "*Tonguin Remedy*." Another celebrated remedy was "*Palmarius's Powder*," composed of the leaves of rue, vervain, sage, poly pody, wormwood, mint, mugwort, balm, betony, St. John's-wort and lesser centaury: each herb to be gathered only in its prime, and dried separately in the shade and powdered. There was the "*Ormskirk medicine*," long famous, and even now scarcely obsolete in some parts of Great Britain: it was made up of bole armeniac, alum, chalk, elecampane, and oil of anise seed.* Then there were the "Tanjore Pills," whose ingredients were mercury and arsenic; "*Sir George Cobb's Remedy;*" "My Lady Bountiful's Infallible Remedy." In 1806 the New York Legislature bought a "preventative" for hydrophobia which was given to the public. It was as follows:

Once ounce of jaw bone of a dog burnt and pulverized. The false tongue of a newly foaled colt dried and pulverized; and one scruple of verdigris raised from the surface of a copper of George I, or George II, by laying it in moist earth. These to be mixed, dose a teaspoonful. The filings of half a copper of the above

kind to be taken in water, increase the quantity if any other copper is used. If symptoms have already appeared, take three drachms of the verdigris with *half an ounce* of calomel followed by four grains opium.

The false tongue of the colt is borrowed directly from the black art and forms the ingredient of many an incantation and charm. The burnt jaw bone of a dog, if the jaw bone of the dog that bit, is introduced on the homeopathic principle of "like curing like." The copper, verdigris, calomel, opium, belong to the "heroic treatment." In France they put the bitten person in the river Seine with his back to the sea, and many cures are recorded. "A returned missionary" advocates a kind of "vaccination" against it, by producing artificial madness by large doses of stramonium. Another recipe by a French family is as follows:

One handful of rue; one handful of inner bark of eglantine; one handful of powdered daisies (whole plant); ten cloves of garlic; ten white droppings of hens; ten white onions. Bruise in a stone mortar, add two ounces of white wine vinegar, bottle tight; —dose a teaspoonful. The patient is to run about for a while directly after taking it until he induces perspiration.

Soon after these the "*Cherry Valley Cure*" came in for its share of public patronage, followed by Dr. Spaulding's wonderful discovery (in 1826) of a specific in *scutellaria laterifolia*. The next humbug of any note originated in Michigan, and was, perhaps, a clearer case of fraud than any of the foregoing. The remedy was tincture of castoreum, and the wonderful case of hydrophobia cured proved to have no origin but in the brain of the Doctor.

A Russian physician, Marochetti by name, pretended to find pustulas under the tongue which were the seat of the disease. His cure consisted in evacuating these, and administering to the patient a decoction of broom tops. This was in 1813; and now another Muscovite fraud, known as Dr. Grzymala, has brought himself into notice, by declaring the *Xanthium spinosum* an infallible remedy, and preventative of hydrophobia. Like other wonderful discoveries, it has proved a thorough and complete failure.

The treatment followed by the Chinese when bitten by a dog, is to catch the animal, take some of its hair, mix it with lime, and

apply it to the affected part. Among other methods an empty walnut shell is to be filled with human fæces, placed on the wound and the moxa applied; then for several days a compound of various herbs with saliva is applied. A mixture of cantharides, yellow earth, etc., is administered internally until micturation becomes painful. On the top of the head a red hair will be found, which is to be extracted; all believe in this. They all believe too, that a man bitten by a rabid dog has three chances of dying, to one of living, and insist on perfect quiet during the progress of the disease.

Prevention is the most important part in practice. Where dogs are kept, every new animal should be quarantined for at least thirty days, that there may be no chance for infection.

When a person is bitten, the early and complete excision of the bitten part is the only measure in which we can put any confidence; and even here we are met with a source of fallacy. In the majority of cases no hydrophobia would ensue, only about seven per cent. of those bitten by rabid dogs are afflicted by the disease,* though nothing at all were done to the wound. How can we know then that the disease is ever prevented by excision? No doubt many persons go through the pain of the operation needlessly. But in no given case can we be sure of this. They get at any rate relief from the most harassing suspense, with which they would probably have been tortured for months. Some put their trust in caustic, but I would advise you to trust nothing but the knife, to which you may supplement fuming nitric acid, actual cautery, etc. If the injury be so deep or extensive, or so situated that you cannot remove the whole surface of the wound, cut away what you can; then wash the wound thoroughly, and for some hours together, by means of a stream of warm water, and place an exhausted cupping glass from time to time over the exposed wound; and finally apply to every part of it some liquid escharotic; fuming nitric acid, acid nitrate of mercury, a strong solution of chromic acid, for example; the chromic acid is preferable on some accounts; it penetrates deeper, and gives little or no pain.

With regard to the proper way of cutting out, the directions

* Braithwaite. Proceedings of Academy of Medicine, Paris. Statistics of the Society for the Promulgation of Science, St. Petersburg. American Journal of Medical Science, etc.

laid down by Mr. Abernethy seem applicable. "The cell," he says, "into which a penetrating tooth has gone, must be cut out. Let a skewer be shaped, as nearly as may be into the form of the tooth; and next let the skewer and the whole cell containing it, be removed by an elliptical incision. We may examine the removed cell, to see if every portion with which the tooth might have come in contact has been taken away; the cell may even be filled with quicksilver, to see if a globule will escape. The efficient performance of the excision does not depend upon the extent, but upon the accuracy of the operation." To this Mr. A. used to add, that as bleeding had been much extolled, had he hydrophobia he would allow a surgeon to bleed him, even to death. Like Seneca, he would be willing to have his veins opened, though his disease might not permit him to indulge at the same time, like Seneca, in the luxury of a warm bath.

It has been recommended, in all suspicious cases, if excision has been omitted in the first instance, to cut out the wound, or cicatrix, within the first two months, or at any time before the symptoms of recrudescence have appeared. One would do it, though with less hope, as soon as possible after they had appeared; but we can hardly expect that excision will be successful then, in stopping the disease. Dr. Bright has recorded a case in which the arm was amputated upon the supervention of tingling, and other symptoms, in the hand, in which the patient had been bitten some time before; but the amputation did not save him.

Although in excision, local anæsthesia may be applied, it is perhaps better that the operation be performed without it. The acid should be applied for two days in succession, and supplemented by the use of fermenting poultices to encourage the throwing off of the slough.

Dr. Yarrow, U. S. army, followed this treatment with his own son, who was bitten in six or eight places, with excellent results.

Lunar caustic, or nitrate of silver, decomposes too rapidly in contact with animal tissue to be certain or thorough in its action.

Before closing this article, I desire to call the attention of sportsmen and medical men to the following, from the pen of the eminent Prof. Bollinger, of Munich, regarding false rabies in the *dog*.

"Symptoms resembling those of rabies are observed in *parasitic enteritis*, caused by tape worms; in *gastro-enteritis, produced by poison*, (arsenic, corrosive sublimate, benzoic acid,) or by the presence of *foreign bodies in the intestine* (bones and pieces of coin that have been swallowed); in intestinal obstructions (invagination), caused by the collection of *indigestible substances in the intestine* (fragments of bone); in the case of *foreign bodies in the ear*, (heads of wheat, for instance, with the beard attached,) in the case of *parasites in the nasal cavity*, (pentastoma), in the *kidneys*, (large palisade worm), or *skin*, (mange); in *uræmia* induced by long-continued *unnatural alimentation*, (starving, feeding with substances containing no salt). In poisoning by means of *metallic preparations*, (the salts of copper and zinc,) there are likewise produced appearances similar to those of rabies:—constrictions of the pharynx, vomiting, and acute *gastro-enteritis*.

"Symptoms *similar* to those of hydrophobia may furthermore be occasioned by *severe pain*, (toothache), by severe *mental disturbance*, (deprivation of their young, extreme stimulation and non-gratification of the sexual appetite); also by various *functional* and *anatomical changes of the central nervous system*.

"In this connection should be mentioned numerous cases of meningitis, encephalitis, hydrochephalus, blood poisoning (pyæmia, secpticæmia); furthermore, the whole class of *mental diseases* in dogs, which have hitherto been completely overlooked, their existence not having even been suspected by most observers. The dog, which as an intellectual and sensual being stands so high in the scale, and whose domesticated in-door life, as the companion of man, is in certain respects directly contrary to his nature as a wild animal, possesses a highly excitable nervous system, and is extremely liable to contract nervous diseases. This fact is shown by the frequent occurrence of the disorders falling under that head (for instance, epilepsy, chorea, epileptiform spasms, and spasms of reflex origin), and equally certain is the prevalence among dogs of pure psychosis, such as mania and melancholia, unaccompanied by any material post-mortem changes that can be detected; and these very forms of illness—having in part also a reflex origin through the causes above mentioned—are frequently confounded with hy-

drophobia, and quoted in support of the theory of the spontaneous origin of the disease, although they are in no respect infectious.

* * * * * *

"In view of the unfavorable prognosis in hydrophobia, and the complete inefficacy of all the therapeutic agents when the disease is once established, it naturally follows that in all rational efforts to control the malady prophylactic measures must always form our chief weapons of offense.

"Of chief importance in this connection are the general *prophylactic* measures to be enforced by the State against hydrophobia in animals, and we will therefore endeavor to indicate what sanitary regulations are best adapted to confine the spread of this malady within the narrowest possible limits.

"The first important point to be insisted upon is *the reduction of the number of dogs*. The comparative danger to be apprehended from hydrophobia diminishes as the total number of dogs becomes reduced, and the most effective method of reducing the number of dogs consists in *laying the highest possible tax* upon them. This tax should be the same for all dogs, without regard to sex, and any remission of the same should be strictly limited to such dogs as are positively necessary for the performance of certain kinds of work.

"The State should also provide for a general *registration* of all dogs. Every dog should be provided with some distinguishing mark; all stray dogs should be pursued by the police and destroyed.

"When cases of hydrophobia occur, directions should be issued to cause all dogs to be muzzled for a considerable length of time; they should either be led by means of a cord, or else kept penned up. The failure to notify the authorities of the existence of a case of hydrophobia should be made a punishable offense. The regulations just mentioned ought always to be applicable to as large a district as possible.

"Rabid dogs should be destroyed, and likewise dogs that have been bitten by them, although no human being may have been bitten. If human beings have been bitten by rabid or suspected dogs, these should be destroyed as soon as the existence of rabies in them has been determined.

"Dogs suspected of being rabid, and also the dogs bitten by them, should be carefully confined at the owner's expense, and in

consideration of the long period of incubation, they should be kept secured for at least six months. The ordinary term of confinement from six weeks to three months is manifestly too short.

"The obligatory muzzling of dogs at times when hydrophobia prevails as an epidemic has always in all localities been attended by favorable results. On the other hand, it is pretended by some especially those who favor the theory of the spontaneous origin of hydrophobia, that the wearing of muzzles favors the development of the disease, an assertion which is unsupported by proof, and which is also completely refuted by what is known respecting the mode of origin of rabies and by various observations. In Berlin, dogs were required for a period of nine years to wear muzzles, during which time no instance of hydrophobia occurred. It is moreover, fallaciously urged by the opponents of the muzzle, that in localities where dogs roam about in large numbers perfectly unrestrained, and subject to no inspection, hydrophobia is an unknown evil.*

"It may be mentioned as a matter of curiosity, that the artificial blunting of the front teeth of all dogs has been recommended by some, as a prophylactic measure against the malady, and it has even been suggested that small flattened metallic caps be fastened by a screw to the corner teeth for the purpose of rendering the bite innocuous."

Canker.—Under this head we have all the diseases to which the external and internal ears of the dog are subject. The meaning of the word *canker* is simply *cancer:* which I need not remark, is an extremely rare disease in dogs.

The so called external canker, is usually a simple ulcer resulting from a wound or scratch, which by neglect, uncleanliness, etc., has taken on unhealthy action. In such case, cleanse with castile soap and warm water, then touch it lightly with caustic. When the silver has formed a white film over the raw edges, brush the ulcer thoroughly with a moderately strong solution of carbolic, or salicylic acid, or thymol. Dry the outer edges and draw together,

* In the description of the geographical distribution of hydrophobia, I have already demonstrated how unfounded this notion is, and have taken pains to show that in such localities (Constantinople, Egypt, Algiers, Asia Minor, etc.,) hydrophobia does occur. *Author.*

covering with a thin piece of lint soaked in the carbolic solution, over which place a second and dry piece. Confine all to the ear by means of collodion, sealing it to the ear around the edges. Remove at the end of twenty-four hours; when, if the ulcer have a healthy appearance, wash well with carbolic acid solution, and apply lint as before; but let the collodion cover the whole of the material as well as the edges, so as to shut out all air; let remain for four or five days, when it may be redressed in the same manner.

If this proves inefficient, the ulcer remaining unhealthy and spreading, the ear also becoming hard and indurated for some distance around the ulcer, we may fear that the trouble is malignant. Apply a solution of chromic acid, ten grains to the ounce of water daily until the foul portions of the ulcer are eaten away, and it has a healthy appearance, when bring the edges as closely together as possible, and dress as before. Strong glacial acetic acid will answer the purpose where the chromic cannot be obtained. Where the swelling is great, a hypodermic syringe should be used, and five drops of common acetic acid injected into the hardened substance upon one, two, or three occasions as may be required to thoroughly permeate the tumor. This should only be used when it is certain the disease is malignant. Such treatment, if properly carried on, will usually dispose of malignant growths.

A cap should be worn by the dog, to confine the ears, and to avoid dressings being displaced while under treatment.

For troubles of the inner ear, let it be carefully washed out with tepid water and castile soap by means of a small syringe. Now look carefully for any foreign substance, as insects, dirt, stones, beards of wheat, or bits of grasses, that may be causing the trouble. If you can procure a silvered ear speculum, and learn to use it, all the better. If you find no cause, you may very properly conclude that it is a case of simple abscess, when you may pour a few drops of glycerine, in which a little sulphate of zinc and morphine have been dissolved, into the ear, afterwards plugging the orifice with cotton. Change the dressing every twenty-four hours, washing out the ear with warm water and castile soap. Be careful not to force too powerful a stream of water into the ear, or you may do injury. During these washings you may be surprised by a sudden

gush of thick, grumous matter; if so all the better, and the animal speedily recovers.

Let the animal wear the cap constantly while under treatment. Foreign substances in the ear may be removed with a loop of fine silver wire, or a noose of horse-hair. If you cannot succeed take your dog to a surgeon.

Coughs.—For a cough without appreciable cause, any antispasmodic remedy may be used; as the compound syrup of squills. Dover's powder, 43, will answer well with the addition of a little powdered licorice. Also 58 and 61.

Hernia.—Umbilical hernia occurs usually in young puppies alone. As it is very difficult to adjust a bandage and compress so as to restrain the hernia, we can only look to an operation for a radical cure. Any good surgeon can do this without serious danger. The operation consists in cutting down upon the sac, reducing the hernia, removing the sac of peritoneum, and closing the wound and opening by means of silver wire sutures. The sooner the operation is performed after the discovery of the hernia, the better; all things being equal. The knife should be used under carbolic spray where it is possible.

Tumors and Warts.—Whether in the mouth or externally, all warts may be removed when not of too great size, by the application of a solution of chromic acid dissolved to saturation in water: equal parts by weight will do (59). Apply a little sweet oil to the parts around the wart to prevent the acid injuring them. A few applications will be all sufficient. Galacial acetic acid will ofttimes answer even better than chromic for warts in the mouth. If warts are too large to remove in this way, they must be dissected out.

Tumors.—Tumors in the region of the neck and lower jaw are best let alone until a surgeon has passed his opinion on them; particularly if they seem to throb and beat. If they fluctuate they may be lanced, which is best done with an instrument known as a *tenatome.* This should be thrust in as per the cut, carried in the direction of the dotted line and drawn out; it should all be done with one movement, and as quick as a flash. When lanced in this way moderate abscesses heal much kindlier than when butchered with a scalpel, thumb lancet, or bistoury.

Fatty tumors must be dissected out entire. Tumors containing

clear fluid may be injected with iodine to destroy the sac. The insertion of a seton, which is moved every day, is better.

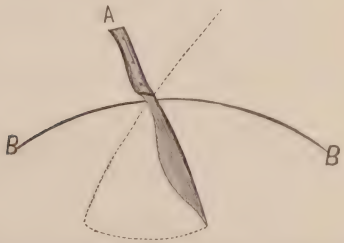
Dress these wounds with 26 spread on a soft cloth.

Bronchocele.—This is an enlargement of the thyroid gland, and is usually of but little moment in old animals. With puppies it demands attention, or it will be likely to interfere with the respiratory apparatus.

Use Donivan's solution, No. 35 as directed.

Apply externally night and morning No. 60.

Vermin.—Vermin are easily eradicated by the use of the



Use of tenatome in lancing an abscess. A, blade of knife entered into the tumor. BB, the dotted line shows the sweep that should be made in withdrawing it.

"Persian" and other insect powders when fresh. Those that are valuable owe their efficacy to the *Pyrethrum roseum*, or flowering pyrethrum, which they contain.

You may also use soft soap with the addition of a few drops of liquefied thymol. Be sure all parts are touched.

Tender Feet.—Bathe with any mild astringent lotion. Look out for thorns and for sinuses in the claws. See 62 or 63. Brine will also answer the purpose.

Gnawing the Feet.—Anoint the toes with No. 25 or 26, tar ointment, or a mixture of tar and zinc ointment. If he still persists, and the whip will not cure him of the habit, put him in boots and muzzle.

Emetics.—Both salt and ipecac are excellent emetics for dogs. When you desire a speedy action, as in a case of poisoning, ad-

minister three grains of the yellow sulphuret of mercury, (Turpeth mineral); if it does not act in five minutes, give a second dose. Its action is both *speedy*, and *certain*, as well as safe; the vomiting, moreover, is easy, and not attended with retching.

Disinfectants.—Solution of permanganate of potash, carbolic or salycilic acid, etc., etc. See 64, 65, 66. Most of the disinfectant powders are but carbolic acid mixed with some of the earths.

Chloride of lime in solution is very good about a kennel. Brome chloralum is of no value.

PRESCRIPTIONS AND FORMULÆ.

DOSES FOR ADULT DOGS.

(*See scale of doses at end of section Anthelmintics.*)

No. 1. ℞. Areca Nut powdered, sixty grains.
Quinine Sulphate, six grains.
Mix. Divide into three powders. A powder to be taken three times a day on three alternated days; the morning of the day no powders are given, the dog is to have a dose 8*a* or 8*b*. It is well to use a dose of the same previous to giving the powders.

No. 2. ℞. Santonine, fifteen to twenty grains,
Quinine Sulphate, six grains,
Aloin (active principle of Aloes) one grain.
Powder and mix intimately, divide into three powders and administer in the same manner as No. one.

No. 3. ℞. Wormseed powdered, thirty grains,
Tanacetum seed powdered, thirty grains,
Jalap powdered, six grains,
Sugar powdered, forty grains.
Make three powders. Use as above.

No. 4. ℞. White Castile Soap powdered, thirty grains,
Tepid rain water, one quart.
Use as directed.

No. 5. ℞. Koosin (active principle of Koosso), ten to twenty grains,
Give after a light meal; follow with No. seven.

No. 6. ℞. 1, Bark of pomegranate root, one drachm,
2, Pumpkin seeds, eight grains,
3, Etherial ext. male fern, fifteen grains,
4, Powdered Ergot, eight grains,
5, Croton oil, one drop.
Boil 1, 2, and 4 in water fifteen minutes and strain. Let it cool. Take two drachms of powdered Gum Arabic and rub up the Croton oil with it and the male fern, form an emulsion with the decoction. Give at one dose. The worm will be expelled in the course of two or three hours. Follow with a dose of 9.

No. 6. ℞. Piconitrate of potassa, seven grains,
Jalap powdered, one drachm.
Extract of licorice sufficient to make thirty pills. Dose 1, three times a day. A dose of No. 8*a* to be taken previously.

No. 7. ***Laxatives.***

℞. Castor oil, two ounces,
Oil of turpentine, one drachm,
Glycerine, four drachms,
Syrup of oil of orange, two ounces.
Mix. Shake well before using. Dose one to two tablespoonsful.

No. 8*a*. ℞. Best salad oil, two ounces,
Oil of turpentine, two drachms,
Oil of cinnamon, five drops.
Dose three-quarters to one and one-half tablespoonsful.

No. 8*b*. ℞. Aloin, one grain,
Leptandrin, two grains,
Podophyllin, one and one-eighth grains.
Grain musk, one grain.
Mix. Take at one dose. An excellent laxative or condition powder. When used for the latter purpose, add quinine one grain. Promotes healthy action of liver and digestion.

No. 9. ***Demulcents.***

℞. Mucilage gum acacia, two ounces,
Laudanum, one drachm.
Mix. Dose, one tablespoonful or less. Arrow root gruel, barley water, rice gruel and elm tea all are excellent demulcents.

No. 10. ***Alteratives.***

℞. Blue mass, ten grains,
Ext. of hyoscyamus, one-quarter grain,
Quinine, two grains.
Mix. Make one pill. No. 15 is an *alterative sedative*.
The following may be substituted with advantage for the above.
Calomel, six grains,
This to be mixed before added to the powder. { Rhubarb, six grains,
Powdered castile soap, two grains,
Leptandrin, one grain.
Cubebs, one grain.
Podophyllin, one-quarter grain.
Powdered Jamaica ginger, five to ten grains.
Mix. Take at one dose, follow with No. 8. This alone is an excellent condition powder.

No. 11. ***Sedative Sudorific Diuretic.***

℞. Tr. aconite root, eight to ten drops,
Bromide of potassa, twenty grains,
Squibbs' sweet spirits nitre, one-half ounce.
Water sufficient to make four ounces. Dose, tablespoonful. Where muriate of ammonia is desired, substitute three-fourth drachm of it for the bromide.

No. 12. ***Anti-Emetic Mixture and Sedative***

℞. Fluid extract of valerian,
Hoffman's anodyne, each one dram,
Squibbs' sweet spirits of nitre, eight drachms,
Acetate of morphine, one and one-half grains,
Spirits de mendereris (fresh) four drachms,
Paregoric, one-half drachm,
Mix. Dose, one to two teaspoonsful.

No. 13. ***Sedative Enema.***

℞. Thin starch, mucilage or gruel, two ounces,
Tincture of opium, ten to fifteen drops.
Mix. Use as injection as demanded, making fresh each time and using while lukewarm.

No. 14. ***Anti-Emetic.***

℞. Squibbs' sub-carbonate of bismuth, two to five grains.

Take at one dose. Two grains of musk or one-quarter grain of soapnia may be added with advantage. N. B. Bismuth should not be used when calomel has been given, until it has operated thoroughly or exhaustively, except in *severe* pneumonia. The effect then will do no harm, but be rather beneficial than otherwise.

No. 15. ***Sedative Alterative.***

℞. Calomel, six grains,
Powdered opium, one-half grain.

Mix. At a dose.

No. 16. ***Saline Aperient.***

Rochelle salts, twenty grains,
Water, one ounce,
Essence lemon, two drops.

Mix. At a dose. Sugar may be added if desired. The essence of lemon corrects the tendency to vomit the salts that occurs more frequently in dogs than men.

No. 17. ***Alterative Tonic.***

℞. Quinine, one to two grains,
Leptandrin, one to two grains.

Mix, a single powder and dose.

17*a*. ***Sedative Alterative Astringent.***

℞. Opium powdered, five grains,
Leptandrin, ten grains,
Quinine, fifteen to twenty grains,
Tannic acid, thirty grains.

Mix. Divide into ten powders. Dose, one every 3, 4 or 6 hours as required.

17*b*. Same as 17*a* only substituting five to eight grains of sugar of lead for Tannin.

No. 18. ***Alterative Anti-Diarrhœa and Dysenteric.***

Bael or Bela. (Bengal Quince.)

When pure this will control the most severe form of dysentery. It will also overcome constipation. Use in infusion, or as marmalade. If Fluid Extract is used, the dose must be in accordance with that given by the manufacturer, reduced one-quarter for the dog. This is the most satisfactory remedy in Materia Medica, when properly prepared, and is harmless.

No. 19. ***Chronic Dysentery; or Dysentery arising from Ulceration of the Bowels.***

℞. Iodine, one grain,
Tannic acid, ten grains,
Water, four ounces,
Mucilage acacia, one ounce.

Mix. Dose, one-half to three-quarters teaspoonful every three or four hours.

Severe Diarrhœa of young puppies when teething or suffering from indigestion.

℞. Calomel, thirty-six grains,
Ipecac, thirty-six grains,
Prepared chalk, six drachms,
Sugar lead, one and one-half drachms.

Mix. Make powder. Dose, two grains to animal of ten months and under.

No. 20. Same as 13.

No. 21. ***Anti-Colic.***

℞. Fluid extract of wild yam.
Dose, five to fifteen drops in thin syrup.

No. 22. ***Alterative Cathartic.***

℞. Calomel six grains,
Jalap, five grains,
Leptandrin, two grains,
Musk grained or powdered, three grains,
Jamaica ginger, ten grains.

No. 23. ***Eye Water.***

℞. Sugar of lead, five to ten grains.
Solve in rose or distilled water, one and one-half ounce
Wine of opium, one drachm,
Filter until clear.

No. 24. Same as 23. Substituting ten to fifteen grains of sulphate of zinc.

No. 25. ***Camphor Ointment.***

℞. Camphor, powdered,
Spermaceti,
White wax,
Salad oil, of each equal parts.
Mix by aid of gentle heat; the camphor to be first dissolved in oil.

No. 26. Simple cerate, two ounces,
Mercurial chalk, one drachm,
Powdered *dry* white lead, twenty grains,
Powdered willow charcoal, twenty grains.
Mix on a slab, and thoroughly incorporate. In warm weather add sufficient white wax to cerate to make it hard enough to spread on cloth.
No. 25 may be used instead of simple cerate if desired.

No. 27. ***To remove opacity of Cornea from the deposit of salts of lead.***

Use a weak solution of acetate of soda, when from salts of silver.
Use solution of hyposulphite of soda.

No. 28. ***Metallic Particles in the Eye.***

Remove with a knife (scalpel) if possible. If so impacted as to be impossible use the following colyria.

Iodine, one grain,
Iodide potassa, ten grains,
Rose water, three ounces. Mix.

No. 29. ***Phosphuretted Colyrium for cure of Cataract.***

Gradually restores transparency of crystalline lens.

℞. Phosphorus, ten centigrammes,
Oil of sweet almonds, thirty grammes.
Dissolve in water bath at eighty degrees Centiar in a closed and full vessel.
Four grammes to be instilled between the eyelids three or four times a day. Takes a month or six weeks to cure.

No. 30. ***To Restore Growth of Hair.***

℞. Powdered muriate of ammonia, ten grains,
Camphor powdered, two grains,
Whipped lard perfumed to suit, one ounce. Mix.

Another ℞. Bi-sulphide of mercury, one grain,
Cocoa butter, ten grains,
Whipped lard, thirty grains,
Mix. Perfume to suit.

No. 31. ℞. Muriate of ammonia,
Corrosive sublimate, each one grain,
Water, five hundred grains. Mix.

Depuytreus Pomade.

Another ℞. Powdered cantharides, one drachm,
Alcohol, one ounce.
Let digest for twelve days, shaking well and often; then filter and add ten parts of this to ninety of whipped lard.

Another ℞. Tincture cantharides, one ounce,
Distilled vinegar, one and one-half ounce,
Glycerine, one and one-half ounce,
Spirits rosemary, one and one-half ounce,
Rose water, eight ounces. Mix.
To be well sponged in twice each day.

No. 32. ***Skin Diseases.***

℞. Sub-carbonate of potassa, two drachms,
Water, one ounce,
Olive oil, one-half ounce,
Camphor gum, two drachms,
Sublimed sulphur, five ounces.

Mix. Rub in well.

No. 33. ***White Soap or Diluted Soft Soap.***

Sublimed sulphur, equal parts. If white soap is used it should be melted and the sulphur stirred in while hot.

Another ℞. Sulphuret of lime, one-half drachm,
Sweet oil, two ounces. Mix.

No. 34.

1. When all others fail, use
Sulphuret of potassa, two ounces,
Water, one pint. Make solution.

2. ℞. Muriatic acid, two ounces,
Water, one pint,
Mix when ready to apply.

Mix equal parts of Nos. 1 and 2, and sponge the animal thoroughly.

No. 35. ℞. Donovan's solution, one and one-half drachms,
Syrup (simple), one-half ounce,
Water to make four ounces.

Color pink, and mark poison. Dose, a teaspoonful three times a day for three days; then a teaspoonful and one-fourth (fifteen drops) for three days. Increase every third day one-fourth teaspoonful until four teaspoonsful (a large tablespoonful) is taken three times per day. If the animal loses appetite, vomits, or shows marked congestion of the eyes, reduce the dose and increase again slowly. If the medicine has to be given any length of time, omit it for every fifth or sixth week, commencing the new series of weeks with the second or third dose of the previous series. Given in this way it acts beautifully as both tonic and alterative. N. B. *Do not give at any time on an empty stomach.*

No. 36. ***Laxative. Aperient Alterative.***

℞. Confection of senna,
Confection of sulphur, equal parts.

Dose, teaspoonful or two as desired.

37. ***Black Wash.***

℞. Calomel, one-half drachm,
Fluid ext. conium, two and one-half drachms,
Glycerine, one drachm,
Powdered gum Arabic, one drachm.

Mix together in a mortar, and stir in one-half pint of lime water. Shake well before using. Apply with soft sponge.

No. 38. ***Alterative.***

℞. Iodide of potasium, twenty-four grains,
Tincture columba, two ounces,
Fluid extract tanaxicun, one-half ounce,
Water and syrup to make four ounces.

Dose, a tablespoonful three or four times a day.

No. 39. ***Tonics.***

℞. Sulphate of quinine, twenty grains,
Queveenes iron, twenty to thirty grains,
Leptandrin, ten to twenty grains.

Mix. Make ten powders. One three or four times a day.

No. 40. ℞. Aromatic sulphuric acid, one and one-half drachms,
Fluid ext. cinchona (red) Squibbs', one-half ounce,
Syrup one-half ounce,
Water sufficient to make four ounces.

Dose, one-half table or a dessert spoonful three or four times a day.

No. 41. Muriatic acid dilute, forty minims,
Nitric acid dilute, forty minims,
Fluid extract of genitan, three drachms,
Water to make four ounces.
Dose, tablespoonful three or four times a day.

No. 42. Warner's pills,
Iodoform and iron, one hundred and ninety-two each.
Dose, one pill three times a day.

No. 43. *Nervines. Anti-Spasmodic.*

℞. Valerianate of iron, twenty grains,
Monobromate of camphor, ten grains,
Grained musk, fifteen grains.
Mix. Divide into ten powders. Dose, one four times a day.

No. 44. Valerianate of quinine, five grains,
Monobromate of camphor, ten grains,
Phosphide of zinc, five grains.
Mix. Divide into five powders, and give as 43.

No. 45. Valerianate of zinc, ten to twenty grains,
Quinine, five grains.
Make ten powders. Use as before.

No. 46. Hubbel's elixir of valerianate of ammonia. Dose, one-half to a teaspoonful as required.

No. 47. *Lotion.*

Powdered borax, one drachm,
Glycerine, four drachms,
Chloroform, one drachm,
Rose water, eight ounces.
Mix. Apply frequently with soft sponge. Rub in well.

No. 48. *Alterative Tonic.*

Fluid extract triticum repens.
Dose, fifteen drops to drachm for adult: for puppies see scale of doses.

No. 49*a*. *Sedative. Febrifuge Alterative.*

℞. Norwood's tincture veratrum viride, ten to fifteen drops,
Muriate of ammonia, one and one-half drachms,
Sweet spirits of nitre (Squibb,) one ounce,
Water to make two ounces.

No. 49*b*. Same as 49*a*, adding fifteen drops tr. aconite root.

No. 50. ℞. Muriate of ammonia, ten grains,
(or sesqui-carbonate, eight grains),
Musk, four grains,
(or Dover's powders, six grains),
Aloin, one-half grain.
Make one powder. Use every 2, 3, 4 or 6 hours as demanded.

No. 51. ℞. Brandy or whisky, one ounce,
Sugar sufficient quantity,
Warm water, two ounces.
Mix. Use as enema.

No. 52. *Liniment.*

Turpentine oil, two drachms,
Croton oil, two drachms,
Sweet oil, one ounce.
Rub in well over chest. Will cause an eruption which may be dressed with Nos. 25 or 26. Keep clear of your hands as much as possible.

No. 53. ℞. Camphor liniment, two ounces,
Chloroform, two ounces.
Mix. Use as No. 52.

No. 54. Turpentine, thirty drops,
Whipped egg, one drop,
Sugar, one-half teaspoonful.
Whip together. May be used in doses of half teaspoonful by mouth or diluted with water by the rectum.

No. 55. ***Bark Tea.***

℞. Red Peruvian bark bruised, one ounce,
Senega bruised, one-half ounce.

Steep in one pint of water down to one-half pint, add one ounce of Squibb's sweet spirits of nitre and two ounces of *fresh* spirits of mendereris (with an excess of ammonia). Dose, one-half to tablespoonful every two to four hours.

No. 56. ***Alterative.***

℞. Muriate of ammonia, one drachm,
Fluid extract conium, ten minims,
Fluid extract eucalyptus, one and one-half drachms,
Syrup, one-half ounce,
Water to make one ounce.

Dose, teaspoonful three or four times a day or oftener.

No. 57. ***For Ear.***

℞. Sulphate of zinc, twenty grains,
Acetate of morphine, five grains,
Water, one-half ounce.

Dissolve thoroughly and filter; then add glycerine one-half ounce.

No. 58. ***Cough Mixtures.***

1. ℞. Paregoric,
Comp. syrup of squills,
Wine of ipecac, each equal parts.

Dose, one-half teaspoonful to teaspoonful.

2. ℞. Fluid extract licorice, one ounce,
Fluid extract cubebs, twenty drops,
Muriate of ammonia, forty grains,
Syrup acacia to make two ounces.

Dose, tablespoonful.

No. 61. 3. ℞. Nitro muriatic acid diluted, twenty-five minims,
Fluid extract hyoscyamus, thirty minims,
Syrup ipecac, two drachms,
Tr. musk, two drachms,
Water to make two ounces.

Dose, tablespoonful.

No. 59. ***Warts.***

Chromic acid, ten grains,
Distilled water, ten to twenty grains.

No. 60. ***For Tumors.***

℞. Iodide of cadmium, one-half drachm,
Simple cerate, two ounces.

Mix. Apply once or twice each day to the bronchocele, rubbing in thoroughly.

No. 62. Solution of alum, one drachm to the pint.

No. 63. Solution of salt with the addition of a few drops (five or ten to the pint) of oil of vitriol (commercial sulphuric acid).

MISCELLANEOUS FORMULA.

Liniment for Sprains, Bruises, etc.

Oil of origanum (pure) two to four drachms,
Oil of camphor, two drachms,
Liquor ammonia, one ounce,
Salad oil, two ounces. Mix.

Liniment for Colic and Obstinate Constipation.

℞. Soap liniment, one ounce,
Tincture of aloes, one-half ounce.

Apply with friction over abdomen. Half an hour later apply tincture of digitalis.

So-called Canker of the Ear dependent upon diseased bone.

No. 1. Acetic acid, one hundred parts,
Blue vitriol, ten parts,

Sulphate of zinc, ten parts,
Sugar of lead, five parts.
Dilute one-half with water. *M. Nelaton.*

No. 2. Liquor of sub-acetate of lead, two parts,
Sulphate of zinc, one part,
Sulphate of copper, one part,
White wine vinegar, thirteen parts.

Let nothing be substituted for the vinegar. Druggists are in the habit of using pyroligneous acid in which the solution becomes a powerful caustic; then the solution when settled has a blue color. It should be green.

Rheumatic Liniment.

Chloral,
Camphor, each one drachm,
Tincture aconite root, one ounce,
Cajeput oil, three drachms,
Alcohol to make four ounces.

Apply with camel's hair pencil over seat of pain.

Spasmodic Asthma in Dogs.

Chloral hydrate, five drachms,
Bromide of potassa, two and one-half drachms,
Syrup of orange flowers,
Distilled water, each one ounce.

Dose, one-half teaspoonful in two ounces of water every two hours.

Fleas.

A plentiful use of powder containing musk will usually eradicate fleas.

Scale of Doses for Dogs. Setters and Pointers.

2 years of age full dose,
18 months " two-thirds,
12 " " one-half,
7 " " one-third,
3 " " one-fourth,
2 " " one-eighth,
1 " " one-twelfth.

A full dose will average two-thirds of the dose for human beings. Of some drugs, as opium, calomel, aloes, jalap, etc., the dog will bear larger doses than the human subject. Of emetics such as tartarized antimony, the dose must be but half of that used for man. "BOLLINGER."

Sweet Spirits of Nitre.

We wish to call attention to the giving of sweet spirits of nitre. The drug usually sold under that name will certainly promote the action of the kidneys, but is after all not only unfit to give to dogs, much less human beings, being strongly acid, and farther, not being sweet spirits of nitre at all. We know of but one make worthy of physician's use, whether for man or beast. This is manufactured by Dr. E. R. Squibb, of Brooklyn, New York. If you will procure a sample of this and one of any other American manufacture and simply taste, you will be convinced. You will find this preparation of a pale straw color, and furthermore is put up in brown glass bottles. Any army or navy surgeon will tell you the same, as will any educated pharmacist, unless he have pecuniary reason for otherwise stating.

Disinfectant for Kennels.

℞. Tincture of camphor, three ounces,
Tincture of myrrh, three ounces,
Soap liniment, two ounces,
Galacial acetic acid, one hundred and sixty minims,
Oil of tar, one ounce.

Mix, adding in the above order and agitate thoroughly. Two tablespoonsful agitated with a bucket of warm water and sprinkled about kennel or stable will not only disinfect but assist in the extermination of vermin; a teaspoonful added to a pint of warm water, forms an excellent tar water, as well as deodorant, and if such is used as an enema in a sick room—that of a typhoid fever patient for instance—will completely deodorize stools previous to their extra intestinal existence. This dilution will be found particularly valuable as an enema for dogs suffering with diarrhœa or dysentery. As a general disinfectant it is unsurpassed.

FOREST, FIELD, AND PRAIRIE.

GUNS AND AMMUNITION; AND THEIR USES.

IN laying down specific instructions for the selection of guns and rifles, with their appropriate charges and various kinds of ammunition adapted to different localities, seasons, and varieties of game, we do so with the positive conviction that our views and opinions will be controverted at the outset by hundreds who may differ with us and with each other; just as they would be, if we took a position diametrically opposite from that which we now take. With this special plea, we will proceed; simply premising that what we print here has received the sanction of gentlemen of venerable experience in the use of old time and modern implements in all parts of America, on both sides of the Rocky Mountains, and who are recognized by the sporting fraternity as reliable and sufficient authority.

THE RIFLE.

All rifles divide themselves into two great classes, long range and short range. Long range rifles are used as military weapons for arming infantry, and as sporting weapons for hunting cariboo, deer, antelopes, and other such timid game as will not allow of near approach. Short range rifles are used as military weapons for arming cavalry, and for general sporting purposes. The division between the two may be taken at two hundred yards. Rifles for match shooting may be used at both ranges; but, from the natural desire of all of us to accomplish the most difficult feats, they are generally held to mean long range weapons.

The first rule we shall lay down is this: It is necessary to decide whether you want a rifle for long or for short range. You can select either, or both, but not both in the same rifle. One will not

do the work of the other. A knowledge of this will save much annoyance and some money. The first requisite of a short range rifle is, that you shall be able to hit any mark small enough to be seen over what are technically called "hunting sights," with an off-hand shot from the shoulder. Greater accuracy than this is not needed. Such a rifle ought to shoot close enough to place a majority of any number of shots within the following sized targets: 2-inch ring up to fifty yards distance; 4 in. do. 100 yards; 6 inch do. 150 yards, and 8 inch do. 200 yards. A good off-hand shot can do this and fire very quickly, and his gun ought to be able to shoot as close as he can hold it. Major H. W. Merrill, a grey old army officer who has passed half his life in Florida and Texas, in and out of the saddle, has laid down the following rules:

1st. To avoid shooting over, a finer sight is always required at and about two-thirds of the range, than at any other point of the range, (say within fifty to eighty yards).

2d. The same uniform sight throughout the whole range will give no greater error than the greatest standing error of the rifle.

3d. Hence knowing this, the same uniform sight throughout may always be used, unless one requires a different sight in order to accomplish his purpose.

4th. In hunting, use the same fine or standard sight, within about the first fifty and the last twenty-five yards of this range. And why? because the standing error of the rifle is so small within these limits, that it may be disregarded entirely. At the greatest, it is only about one inch, and from thence to nothing at the two point blanks. So much for sighting within the range.

5th. But, for different distances beyond the range, as 125, 150, etc., yards, use a sight "coarser" and coarser, "the further off your game is."

To summarize, the formula for sighting seems to stand thus: Coarse very near the piece, with a less coarse to fine at twenty yards, (centre, p. b.,) thence finer to extra fine at sixty-six yards (thereabouts and greatest error), thence less fine to fine at one hundred yards (centre p. b.), thence coarser and coarser (beyond the range). Of course different rifles, and the same rifle with different charges, etc., produce different curves, or errors. Hence in general, learn well by practice and study the deviations of your rifle along the whole distance, and then (for close shooting) seek to so aim as to correct them.

Good shooting, however, cannot be done without good ammunition. Mr. E. A. Palmer recites in *Forest and Stream:* "My method of loading cartridges is to fill the shell, leaving only space enough to put in a thin cut wad of paste board, and not over one-

eighth of an inch in which to seat the bullet; that leaves nearly the whole length of the bullet in the rifling of the barrel when the cartridge is in the chamber; and if the bullet is the *right size* and *properly patched*, the patch will not be torn in putting the cartridge into the chamber (or in the passage of the bullet from the shell into the barrel when fired), if the gun is *properly made* and *clean;* and it will also straighten the bullet in the shell if it is a little loose, owing to the short distance it goes into the shell.

"The pasteboard wad over the powder has its advantages and its disadvantages. If the bullets fit the shells loosely, it prevents the powder spilling out in carrying, if the bullet comes out, and it also serves in a measure as a gas check and prevents in a measure fire cut. But if the bullet is concaved much in the base, the wad is liable to be forced into the hollow base of the bullet and go with it. I have found the pasteboard wad, lubricator, and part of the patch at eight hundred yards from the firing place, lying beside or sticking to the bullet, and in one instance, part of a dry pasteboard wad, when no lubricator was used, was found sticking to the bullet; the bullet was shot into snow at five hundred yards. I never use lubricator of any kind when I want to do fine shooting, but use a dry paper patch and wipe the gun clean and dry after every shot.

"Another very important item is the composition of the bullet, which must be of a hardness in proportion to the amount and strength of the powder used. A bullet that would be hard enough to use with seventy grains of powder and shoot well, would be good for nothing to use with a charge of one hundred or one hundred and ten grains. It would be upset so it would take the rifling beyond the patch, unless the bullet was patched the whole length. Fix upon some particular brand of powder that you can always get, and the quantity to be used for your charge, then make some bullets, weighing the lead and tin (if tin is used to harden),* mak-

* *Hardened Balls.*—The composition generally used to make a hard ball, is one-half tin to four of lead. Some authorities state that a fractional portion of antimony is useful, but we should think, that any projectile similar in composition to type metal would be too brittle. Quite a leading writer on this subject states that balls will harden by dropping them while hot in fat, buffalo-tallow being preferred, but we regard this as empirical, and resting on no sound chemical or physical basis. Some English elephant-hunters have used projectiles of lead with a steel point, but these have fallen into disuse from the want of accuracy in their flight.

ing a note of the proportions; load some shells with your standard charge of powder; patch the bullets carefully, wetting the patch

The use of hardened balls and the advantages to be derived from them, is a much more complex subject than would seem apparent at first sight. A prominent English writer states, "that a hardened ball in striking a bone, when properly made, should flatten against the bone (of the animal) without boring through it, while at the same time it must retain enough of its round form to obviate any chance of the increasing distance offered to the larger surface stopping its way, and therefore preventing its penetrating far enough." Here then are two difficulties, which apparently militate against one another, the ball must crush the bone, and still have power sufficient to seek a vital point further on. We think this most intelligent writer overlooks somewhat the important subjects of range and velocity, which we think are vital to the subject. If it be smashing of the bones which is required, we should suppose that a hardened ball, shot at close range, with its high velocity, would least accomplish the purpose desired, for it is at a close range only that elephants, lions and tigers are shot. The advantage to be derived from a hard ball in breaking bones, or stunning the animals which it strikes, would then we suppose be best effected at a slow velocity.

A curious question entering here, is that of the vitality of animals, or the lasting powers they possess to resist when seriously wounded. The Cervi readily succumb, while the difficulty of killing a member of the feline race has passed into a proverb. This distinction of the staying power may even be found in man, for it is a well known fact that an Anglo-Saxon is twice as hard to kill as a Chinese. Hard balls are useful in the two extreme cases, where the bony portion of the animal is in large proportion to the fleshy case of the animal, as in the moose and eastern buffalo, and of course, where the bones are covered with a huge mass of flesh, as in the elephant. For lions and tigers, hardened bullets are not as useful as the ordinary ball.

Certainly the great object in using any projectile is to have the animal struck by it to die as quickly as possible. Perhaps the most unsatisfactory thing we know of, is to shoot a moose, and certain that he is wounded mortally, to be forced to follow him a whole day before finding him dead. In shooting lions and tigers, of course the preservation of the hunter's own life is to be thought of.

Explosive Shells.—The question of hard balls is likely to be silenced shortly and forever by the use of explosive shells, an instrument first introduced by Colonel Jacob, of the East India service, thirty years ago. To-day, sportsmen in the East are using them against the large game, and with notable success. We should think our friends in California might use explosive shells most advantageously in their combats with the grizzly bear. This explosive bullet, which is a combination of a rim-fire metallic cartridge, with a hollow bullet, was invented independently by General M. C. Meigs, U. S. A., and L. H. Mead, jr., U. S. A., now deceased. L. H. Mead says:

"We carried the shells in Colorado, California, and Central America, and finding them a sure thing for ordinary game, had them manufactured by the Union Metallic Cartridge Company, at Bridgeport. Lieutenant Carpenter, of the Hayden exploring expedition, while in Sierra Madre, fired a .50 calibre, seventy grain United States Government cartridge at a thousand pound grizzly, in a Remington rifle, at one hundred and forty yards range. The four hundred and fifty grain bullet containing a .22 calibre long pistol cartridge with seven grains

quite wet in the mouth, and draw it on as tight as you can without tearing, and stick the edge down with mucilage, using as little gum as possible. Do not attempt to seat the bullets until they are perfectly dry, then shoot them into a *snow bank;* they will penetrate it from three to six feet, according to its density, when they can be readily dug out, and if they do not hit anything harder than snow, they will be found as perfect as when they left the gun. If they are upset so as to show the groove one-half or five-eighths of an inch they are about the right temper; but if they are upset more they are too soft, and if not as much they are too hard, and more or less tin should be used; when casting bullets stir the metal often.

"Then the size of the bullet is another point to be attended to. If it is too large it is apt to bind in the grooves of the gun in inserting the cartridge, and tear the patch; and if too small and is loose in the shell, it is liable to slide a little toward the muzzle if the gun is held muzzle downward, and also to be *driven forward a little by the blow of the firing-bolt upon the cap before the charge is ignited.* All these little things make a difference in the shooting and help to produce unaccountable misses. The same care and nicety should be observed in loading each and every cartridge as would be required in loading the most elaborate muzzle loader."

Another important requisite to successful shooting, as may be gathered from what has been already said, is that the ball should have sufficient impinging surface to give a severe shock to and stun the game fired at. This requires a large calibre for small game.

of powder, exploded in the brain and tore off the top of the skull, killing him instantly." They can be carried in the pockets with safety. We would not advise their use in a Winchester rifle.

Point Blank.—"The point blank is the point at which the line of sight intersects the trajectory. Strictly speaking, the line of sight intersects the trajectory at two points; but in practice the second intersection is only considered. This distance is called the point blank distance. The natural point blank corresponds to the natural line of sight; all other point blanks are called artificial point blanks. In speaking of the point blank of a piece, the natural line of sight is supposed to be horizontal. In the British service the point blank distance is the distance at which the projectile strikes the level ground on which the carriage stands, the axle of the piece being horizontal."

Thus we see that the natural point blank is at a distance which is constant and fixed for any piece of ordnance, the charge remaining the same, and is a measure of the power of the piece.

The sportsman will have no difficulty in finding a number of different rifles in the market, which will answer the requisite of accuracy within the conditions above laid down. To get a rifle that does not require the use of an elevating back sight above one hundred and fifty, or even one hundred yards, we shall not find easy. The reason of this is, that military rifles, which are long range, are so fashionable that makers of so-called sporting rifles follow the proportions of powder and projectile, and the rate of twist best suited for long range, but quite unsuitable for short range. For long range we want as small a bore as possible, as long a projectile as possible, and a very quick twist, to give enough velocity of rotation to keep the elongated projectile end foremost, and as much powder as the small bore will burn. The result is a moderate initial velocity; but owing to the small surface exposed to the resistance of the air, the momentum of the heavy projectile, a very long range.

Now, for a short range rifle we require the very opposite of all this. We want as large a calibre as possible, so as to make a big hole in our game; as large a charge of powder as possible, to give a high velocity, without which we cannot have a low trajectory. This also requires a short projectile, to diminish the friction on the grooves, and a short projectile requires a slow twist. The length of the rifle barrel must be shorter, which also diminishes friction. To reduce these proportions to practice, we find that the Creedmoor long range rifle and its ammunition have the following proportions: Weight of rifle, 10 pounds; weight of projectile, 550 grains (ratio 1-6), weight of powder, 90 grains; twist, 1 in 20 inches; calibre, 44-100; length of ball, 1.6-10 inches, length of barrel, 30 inches. A short range rifle, suited for deer, bears, buffalo, etc., should have the following: Weight of rifle, 9 pounds; weight of projectile, 320 grains (ratio $\frac{1}{4}$); weight of powder, 80; twist, 1 in 48 inches; calibre, 55-100; length of projectile, $\frac{3}{4}$ inch; length of barrel, 24 inches. For smaller game, such as turkeys, a calibre of 35-100 will answer, and the length or weight of ball, charge of powder, etc., will be reduced in proportion.

The difference in the practical operation of the two rifles will be this: With the long range weapon, if you have your range within a very few yards, and elevate your back sight accordingly, you can

make accurate shooting at all ranges. But if you misjudge your distance at all, or even if you know it and have not time to elevate your back sight to its proper height, you will certainly either shoot over or under your game. With a short range rifle proportioned as we have described, the drop of the ball, owing to its great velocity, is so little, there is absolutely no judging of distance required. Whether you are at twenty-five, fifty, seventy-five or one hundred yards, all you have to do is to draw a little coarser bead the farther off your game is. Practice will soon show you how much. Your ball should not deviate more than a couple of inches above or below, and this does not exceed the limit of accuracy heretofore laid down.

The faults of modern American breech-loading rifles intended for sporting use are: 1—not large or heavy enough projectile to make a disabling wound on an animal as large as an old buck deer. 2—not enough velocity of ball, owing to too little powder being used, and too great friction resulting from an unnecessarily quick twist. The muzzle-loading hunting rifles that were made twenty or thirty years since avoided the second of these faults. Their calibre was smaller than we should now use; but the reason was, that in those days a hunter had to prepare his own ammunition, and he liked to make it go as far as possible. There is one other point that deserves mention. Shall we choose a single loading rifle, or a repeater, that carries a magazine of cartridges? Now, it is very clear that there are many advantages in a repeater, like the Winchester or the new Evans rifle, and the only question is, whether there are any disadvantages, due to the greater complication of the weapon, sufficient to counterbalance the admitted advantages.

Mr. Omohundro, of Virginia, better known as "Texas Jack," has strongly recommended the last edition of the Winchester rifle. The earlier ones were very apt to get out of order at critical moments, their pet vice being the tilting of the ball just as it entered the breech, whence arose jammings and rammings. Apart from this, they were most pleasant and handy tools. The ease with which this arm is loaded and fired, almost takes it out of the category of "arms of precision," and reduces it to that of the slug-carrying "scatter gun." It is a very good *deer* gun, but for griz-

zlies and animals that kill *hard*, the charge of powder is very small, and consequently the driving power not very great. Like the "feather weight" of the prize ring, it puts in its "taps" rapidly and often; but we think the animal has the least chance with the ponderous bone smasher, with its heavy charge of powder and ball, whose first blow *tells*. An old expert says:

In hunting on the plains and in the Rocky Mountain country—and the best big game hunting for the rifle, is west of the Missouri, and not east of the Alleghanies—I have found that one hundred yards was a short range compared to most of the distances at which game is killed. I have hunted deer from the Wind River Mountains in northwestern Wyoming Territory to the extreme southwestern part of New Mexico, and my experience has been, that most of the deer I have shot myself, or seen shot by others, were killed over one hundred yards, and many over two hundred yards (measured, for always when I can, I pace off the distance). I refer more particularly to black-tail deer, as the white-tail deer keep more in the timber, or in the thickets along the stream bottoms, and are therefore shot generally at shorter distances. I mean the black-tail of the hunters in the Rocky Mountain country (*Cervis Macrovis*) called by naturalists the mule deer, and not *Cervis Columbianus*, the black-tail of the naturalists, which is found farther west than the Rocky Mountains. (By the way, what impertinence and presumption on the part of eastern naturalists to try and dictate to us about the names of these deer, and to call the black-tail the mule deer, and the Columbia River deer the only true black-tail.) One of my rifles, which I used for hunting in the Far West, a Springfield, fifty calibre resighted, restocked, etc., by a western gunsmith, is so sighted that its point blank range is over one hundred and fifty yards, as most of the game at which I used it, especially antelope, were shot from one hundred and fifty to three hundred yards. The farthest I ever killed an elk dead, was four hundred yards (which I paced). I have seen many hunters on the plains have their rifles so sighted as to have a point blank of nearly two hundred yards, thus making a very good rifle for antelope or elk. Elevating sights are an abomination and a delusion, on a hunting rifle.

Guns to carry Ball.—In the timber, where game is shot at

short distances, a strong double gun is a formidable arm when loaded with one ball and one buck shot cartridge. The ball may be relied upon for ten rods, and at a still longer range with slight elevation, and for snap shots at running game, will do fatal work about as often as a rifle. The round ball is considered as more immediately destructive than any other. The blow is very powerful, and the "shock" to the animal consequently great, while the flesh and skin will hardly close over the wound to retard bleeding. It is claimed that large game will succumb more rapidly to the ragged crush of such a large ball, and save many a mile of trailing or the loss of game. There are many long arduous tramps taken after large game, when every ounce is to be well considered in arranging packs, and when but one gun can be carried, the use of ball in double guns may enable a hunter to decide upon taking a gun that will bring ducks, spruce grouse, etc., to the larder. Round ball cartridges may be prepared in the same way as shot cartridges, with a wad over the powder, but none on the ball, simply creasing the shell deeply over it, to keep it firm.

Shot Guns.—While the muzzle-loading rifle may be said to still hold its own with the breech-loader, as proved by the long range tests at Creedmoor and elsewhere, as well as in the field, the muzzle-loading shot gun has had to defer to the breech-loader. The advantages are so much with the latter, especially in wing shooting, that we shall confine our few remarks to it exclusively. There are so many makers of excellent guns both English and American, (which are chiefly in use in this country,) that in attempting a selection of the best, comparisons as to their merits become invidious and fruitless of satisfactory conclusions.

By the way, we may remark, in passing, that those who are endeavoring to fix a date from facts, for the period of perfection in the use of firearms for sporting purposes, will be greatly assisted by a small Italian work, entitled "*Eccellenza della Caccia de Cesare Solatio Romana*," printed at Rome, in 1669. The author states, that at the time he wrote, the art of shooting on the wing had been known in Rome about eighty years, so that it may be taken for granted that in Italy sportsmen began to shoot on the wing about 1589. It is therefore natural to suppose that about the same period that practice became tolerably general on the conti-

nent of Europe. It is a remarkable fact, which can be verified by reference to the collection of arms in the Tower of London, that the periods of excellence in the manufacture of arms have been intermittent, and that modern superiority seems to have been merely the revival in great part, of what at sundry previous times would appear to have been almost a lost art.

In the purchase of guns sportsmen must be governed by their pecuniary resources; and as all cannot afford to purchase the highest priced English guns which cost at least two hundred and fifty dollars in our markets, including their fixtures, they naturally inquire if an American gun equally good cannot be bought at a price much less. Undoubtedly, we have as competent gunsmiths here as any abroad, and inasmuch as most of the materials used by them are of foreign production, imported in a crude state, it is reasonable to suppose that they can be and are perfected and embodied in the completed gun at a much less expense than the imported gun would cost. Such a gun, when obtained, is a treasure. But it happens that a great many inferior low priced guns are placed upon the market under the pretentious titles of "Stub-twist," "laminated steel," "Damascus," and the like,* retailing at from thirty to seventy dollars; so that one is liable to be deceived unless he is a good judge. The only safety in purchasing, therefore, is to obtain reliable counsel, and to deal with honest and responsible parties.

Inasmuch as good muzzle loaders can be bought at very low prices, there is a prevalent disposition to have them altered to breech-loaders, for the sake of convenience and safety; but we would not advise this change except in special cases, as the expense of altering will nearly equal the additional cost of a new breech-loader. Choice of guns depends upon the habits and quests of the shooter. For a man who shoots but little, and seldom on the wing a muzzle-loader is as good as need be required. For a man who wants a general service gun, for field, cover and trap shooting, a breech-loading gun of eight and a half pounds weight, thirty inch barrels, and ten gauge is the proper tool. It will answer

* In the twist barrel the lines run with perfect regularity; the laminated barrel being hammered, the surface presents an irregular appearance. In a stub twist barrel the material is rolled as in Damascus or laminated, but less twisted The common twist is made of inferior metal and scraps, but is also twisted.

for snipe, grouse, hares, turkeys and ducks, and for deer, when loaded with buck-shot. However, a No. 12 gauge is serviceable enough, the odds against it being merely that it will not stand so heavy a charge as a ten gauge, and of course will not bag the game shot at, as often or as easily as the other. For wild fowl shooting, use a gun from nine and a half to ten pounds weight, thirty-two inch barrels, and ten gauge. For "point shooting," on the Chesapeake Bay and similar places, a fourteen pound, five to eight bore, single gun, is the most effective.

Guns for natural history specimens should be sixteen bore, and twenty-six inch barrel; load with mustard shot and a half drachm of powder. No gun will do itself justice or give proper execution unless it is properly loaded. Correct loading used to be acquired by careful observation and practice; but now we have a table of proportionate charges for different gauges, which has been prepared by Major H. W. Merrill, United States Army, to whom all inexperienced sportsmen owe a large debt of obligation. The table, which is herewith given, is based upon the rule that "*The proportionate charges of shot guns of different bores are to each other in the ratio of the area of their bores.*"

TABLE OF PROPORTIONATE CHARGES OF SHOT-GUNS OF DIFFERENT GAUGES FROM NO. 4 TO 16 INCLUSIVE.

	Gauge Numbers.	*Diameters of bores.*	*Areas of bores.*	*Ratios of areas.*	*Loads Powder nearly.*	*Loads of shot nearly.*	*No. of pellets exactly.*	
	4	1.08	9137	2.45	7 1–3d	2 7-16 oz.	534	
	5	.99	7693	2.06	6 1–5d	2 1-16 oz.	449	
	6	.93	6782	1.82	5⅗d	1⅞ oz.	397	
	7	.89	6277	1.67	5d	1 13-16 oz.	364	
	8	.85	5052	1.51	4⅘d	1⅝ oz.	329	
	9	.82	5275	1.41	4⅕d	1 7-16 oz.	307	
	10	.79	4398	1.31	4d	1 5-16 oz.	286	
	11	.76	4521	1.21	3 2–3d	1 3-16 oz.	264	
	12	.73	4176	1.12	3 1–3d	1⅛ oz.	244	
	13	.71	3956	1.06	3 1–5d	1 1-16 oz.	231	
Unit of	14	.69	3736	1.	3d	1 oz.	218	Tatham's
measure.	15	.67	3516	0.94	2 4–5d	.15-16 oz.	205	standard
2 4-5 drs.	16	.65	3228	0.86	2 3–5d	.14-16 oz.	188	shot No. 6.

NOTE.—The unit of measure is three drachms of powder and one ounce of shot for a No. 14 gun.

The charges given are not too light for small game within forty-five or fifty yards; for young boys they are too heavy, and may be reduced one-fourth. The Major advises that beyond fifty yards,

for large game, ducks, turkeys, geese, deer, etc., the charges be increased according to the powers of the gun and the ends to be accomplished. Some persons will say, and quite truly, that all guns of the same bore do not call for the same amount of ammunition. They are exceptions to the general rule; load them to suit their peculiarities. Very light guns, with large bores, may not shoot pleasantly, from too much recoil; load them less, but at the expense of penetration and wounded game. Cheap guns with rough barrels, and rusty or dirty guns, may kick too much with these loads. These, with all other nondescript and unduly proportioned guns, are excepted from the general rule. This presupposes fair guns only. Very diverse results with good guns may be brought about by having the powder disproportionate to the shot and conversely; using very coarse and very fine powder, also very coarse and very fine shot; by employing more or less wads varying in diameter and thickness, and setting them home upon the charge with different pressure or ramming; by holding the gun, when discharged, firmly to the shoulder or otherwise, etc. Now, if all these items control the shooting, does it not follow that to load a gun accurately for all purposes requires many experiments, good judgment, and even great skill?

Choke-Boring.—There have been many crucial tests of choke-bored guns against smooth-bores, both in this country and England, but the advocates of one and the other do not seem wholly satisfied with the exhibit as deciding their respective merits. The advantages of choke-boring under certain conditions of field shooting are certainly conceded. The effect of choke-boring is to increase the effectiveness of the gun at long range. If we did *all* of our shooting at very long range, we would be induced to use a choke-bored gun, or at all events, to have the barrel choke-bored; but for our own customary service we prefer a gun not choked, for the reason that we have found that the Kay concentrating cartridges produce the effect that is claimed for the choke-bores. Thus we have the choice, at all times, between the straight and the choke, which gives us an advantage in shooting which we should not have if restricted to the one or the other. Mr. A. G. Dole, a veteran sportsman of fifty years' practice, says very truly, in a letter to the "*Rod and Gun*" journal:

"There are but very few choice guns made in this age, either in this or foreign countries, which may not be called choke-bores, for the calibers of the barrels are smaller at the muzzle than they are at the breech. If any person doubts this statement, let him apply the calipers to the Parker, Remington, Schaefer, Tonks, Scott, Greener and other guns. I am inclined to think that there are many persons who have guns of recent make and good shooters, and who call their guns straight-bores, would find them to be, on close inspection, choke-bores. The true principle of choking, I think, is to have the taper as long, as gradual and in as perfect a circle as possible, and terminating some half-inch from the extreme end of the barrels, being careful to avoid all abruptness in the beginning and end of the choke, and leaving a perfect surface. I regard 1-16 of an inch as the extreme choke for any gun; I prefer 1-32 of an inch. As I almost uniformly discharge the right barrel first, I have this barrel choked a trifle less than the left."

The Use of Firearms.—We enjoin upon all sportsmen a careful observance of the following rules in handling guns, which are given by a prominent member of the New York State Sportsmen's Association:

1st—Never in excitement nor in fun point it towards any human being.

2d—Never carry it so that if accidentally discharged it would endanger the life of a dog even.

3d—Always think, when walking, which way your gun is pointed, and if a companion is in the field with you, no matter how near and how temptingly the game appears, do not shoot until you know just where he is, and that a stray shot may not possibly strike him, for one little pellet is sufficient to destroy an eye forever.

4th—Never get into a wagon without taking the cartridges from the gun.

5th—Never get over a fence without either taking the cartridges out, or placing the gun through the fence on the ground, so that if you fall or the fence breaks it cannot be discharged.

6th—Always carry the gun at half-cock.

7th—Never let the hammers rest on the "plungers," or pieces which strike the cap.

8th—Never try to close it when the hammers are down.

9th—Never get in front of it yourself. If you see you are about to fall, drop the gun so the muzzle will be from you. Occasionally a cartridge will stick after it has been fired. A stout thin blade of knife will generally extract it, if not *remove the other cartridge*, and then cut a straight stick and poke it out from the muzzle, but even then don't place your body in front of it, but content yourself with using the hand.

10th—After firing one barrel, take the cartridge from the other and examine the wad over the shot to see that it is not loosened by the concussion as it very fre-

quently is, which would produce a heavy recoil, and if it gets up the barrel, will burst the gun and likely take a hand off besides.

11th—Never take hold of the muzzle to draw it toward you, nor set it up, when, if falling its muzzle would be toward you.

Finally, follow all these suggestions and be self-possessed, and the fields will afford you sport without danger, and I hope without temptation.

HINTS FOR SOUTHERN SHOOTING.

For all but boat shooting, guns to be used under the hot sun that, even in winter, falls on the Southern fields with a fierce heat, should be light, and of not too large bore, to economize weight of ammunition.

A rifle should be short, and one chosen that will in opening be free from long levers that may catch in bridle reins, will avoid annoyance. For alligators and panthers, the Mead explosive ball is unequalled, and its use increases very materially the chances of so shocking and stunning those tenacious animals as to recover them at once. All the talk of a ball glancing harmlessly from their scales may have been true years ago, but the modern rifle carries its missile through the scales and skull, and penetrates any part of the animal, even at long range.

For all but the "gator," the shot gun is the convenient arm. Deer are usually "jumped" and shot bounding through the large leaves of low palmetto, and at all times one load of fine shot is needed for quail, snipe and plumage birds, that are constantly fluttering up. For this reason, on account of the miscellaneous character of the game, where one is liable at any time to meet deer, quail, panthers, snipe, bears, ducks, or wild cattle, which are more dangerous than any other animal, as they are likely to charge a foot-man at sight (a horseman is safe), we have always been persistent in recommending the Baker three-barrel gun, notwithstanding the prejudice against combination arms. It is very light and handy, and always prepared for the exigencies of the chase. The rifle barrel occupies the place taken up by a ramrod in the ordinary muzzle-loader. The gun has two shot barrels 12-gauge, and one rifle barrel 44 calibre. Central fire, one extractor withdrawing all three shells. Weight of gun eight and three-quarter pounds. The rifle is apt to shoot truer than the ordinary sporting rifle, because it lies under the shot barrels, the tendency of all rifle-

men being to over shoot. Wild turkeys are hard to kill, but often an expert caller will bring them so near that missing them is needless, and the use of a wire cartridge of large shot in one barrel will do all that can be to insure success in getting this superb bird, which is a far finer trophy, and more difficult to obtain than any that tempts the sportsman from his camp while the day has not dawned.

In following a wounded deer on the trail, remember that as a general rule all wounded animals will travel the easiest paths and those requiring the least exertion. Always let a wounded deer lie down and "get sick" before following in the trail. The time consumed will not be wasted. The quality of the blood, whether it be bright red or dark, and the way it lies upon the trail, will indicate whether the animal is hit in a vital part. The tracks will also help often in this, and should inform you whether the animal is fat or in poor order. If following a wounded bear and you have reason to know where he is, do not approach on the trail, for he is watchful that way, but circle and approach from another direction, and if possible against the wind.

In still hunting or trail following, remember that you can not go too watchfully, carefully or slow. Go slow, sit down often, don't shoot if by yourself until you get a dead shot; don't be afraid to let a deer run away without shooting at him. Never shoot at the bulk of anything; always shoot at some particular place on a deer, the smaller the better, so it be not his head; but even the head is better than to just get a sight full, and pull without knowing where you are going to hit him. Of course, sometimes you will have to shoot quick, but don't mistake "quick" for a "hurry and flurry." These last two words in hunting and rifle shooting mean nearly the same thing. When you kill game so big that you can't take it to camp and have to return for it, always mark it down by some prominent object so as to find it easily.

In Florida, Mississippi, and Louisiana, which are much intersected and traversed by bayous and water courses, for short trips from the settlements, nothing will be more convenient, and render the sportsman more independent, than a flat-bottomed boat, with small sail, centre board, and a water tight end with tight trap to carry dry clothing, tea, sugar, etc., to protect from the frequent

showers. Floating quietly with the current or tide, a patient hunter may surprise almost all the game birds and animals, and he will see more of interest in the little streams than in miles of the frequented channels. For exploration and travel a boat eighteen to twenty-two feet long, four and a half or five feet beam, with the full width carried to the stern, built with a flat keel, and broad bearings to insure light draft, fitted with centre board and sail, the latter on sliding topmast for compactness, will be found the best. When anchored the bow will point to the wind. A tent open aft may be hung under the boom, spread with stretchers, and furled sail; and with light boards a bed for three or four may be arranged, and cooking by spirit lamp be done at the wide stern. With such a boat, and two good negroes, boatmen, (cooks they generally are,) more interesting trips can be made than with a yacht, and more unfrequented points be reached. If cruising in the wide waters is intended, some considerable shear to the bow lines will make a drier and safer boat, and a canvas bow deck will do good service. Air cushions will be found very comfortable, and in mishaps they are invaluable as life preservers.

Often for miles no hard ground is to be found, and some heating apparatus is indispensable. No one should brave the night air of the everglades without warm and stimulating food and drinks, and a little quinine will do no harm. Light wines are of great service, and the water flowing from the swamps will not be harmed by a "wee drop," and for the rattlesnake or moccasin bite that never comes, the same is needful. Prudent ones usually do not wait for a bite, but show unbounded confidence in preventive measures. [For additional instructions see chapter on Woodcraft, hereafter.]

Hints on Prairie Shooting.—The 15th of August is the opening day of the season for pinnated grouse—or "chickens," as they are usually called out west, and during the remainder of that month and the first two weeks of September, much larger bags can be made than later in the season; but to us there is very little pleasure in shooting a large number of this splendid game when the weather is so extremely warm, using up both the hunter and his dogs, and when it is almost impossible to prevent the game from spoiling on our hands. Moreover, in making the trip thus early in

the season, the only kind of game to be found is the pinnated grouse, but by deferring the time until the latter part of September, we can have, say, a week's shooting for grouse, and at the end of that time the snipe and ducks will begin to visit the lakes and marshes which abound in the west and northwest, and afford most excellent sport. In order to have the best sport, it is important that each shooter should take with him at least one good, steady, well-broken dog, and in condition to work day after day, and by all means one that is a good retriever. If a dog is a strong, well-formed fellow, and in proper condition for work, is properly fed and has a comfortable place to sleep after his day's work is over, he will do all the work required of him on such a trip; yet it is far better to have one or a brace of extra dogs along, in case of lameness or some other casualty. There are, no doubt, many places in Illinois where fair grouse shooting could be found, but during the past seven or eight years we have considered it best to cross the Mississippi River into Iowa or Missouri, or to shoot in Wisconsin. In making such shooting trips we have frequently availed ourselves of trustworthy information from the different conductors of the trains over the prairies as to the best places to stop. Many of these gentlemen are sportsmen, and we have found all to be courteous and anxious to give strangers valuable information as to where comfortable quarters and game may be found. In such shooting, it is absolutely necessary to have a team and driver, as the game is too heavy to carry any length of time; but a good team and careful driver can always be found at moderate rates.

Early in the season, use No. 8 shot; later, No. 6.

How to Load for Game.—A ten-bore will chamber about five buckshot; put in about four layers and four drachms of powder. Pinnated grouse, three and a half drachms powder and one and one-eighth ounces No. 8 shot. Ruffed grouse (partridge) three and a half drachms powder and one and one-fourth ounces No. 8 shot. Woodcock and snipe, three drachms powder and one and one-eighth ounces No. 10 shot. Powder, No. 6 Laflin & Rand's. Some years ago fine grain powder was generally used; the coarse grain gives better penetration and less recoil. Either the brown or blue shells can be loaded again, provided they are intact and not injured anywhere.

BLINDS; DECOYS; CALLS; AND OTHER DEVICES.

Blinds for Wild Fowl.—If the blind is built of small branches or bushes, they should be stuck up in the ground close together, smaller twigs entwined among them, and bunches of grass, weeds, rice, or flags scattered judiciously over and amongst them, to close all open or thin places. If very large bushy branches are used, they may be laid down crossing each other, with the tops turned outwards. The blind should never be built higher than the shoulders of the shooter when in an erect position.

In blue-bill shooting upon the edges of ploughed prairies and cornfields, a good blind may be made by turning your boat upon its edge, and bracing it in that position by a stake or oar.

In the winter when the ground is covered with snow, a blind made of bleached cotton cloth fastened to stakes stuck in the ground, affords a good concealment, and cannot be easily distinguished from the surrounding snow. A white covering should be worn over the cap or hat.

The Sneak Box.—The box in which the shooter lies should be made of pine, sides and bottom one inch, and ends two inches thick, and of proportions adapted to the size of the person to occupy it, six feet long, two feet wide, and thirteen inches deep, being proper for an ordinary sized man. Along each side and across the ends, one inch below the top edge of the box, two-by-four-inch pine timbers are fastened, framed together at equal heights, and extending on all sides, two and a half feet from the box. This frame should be slanted off on top fully an inch towards the ends to give a pitch to the deck, and on the under side should also be reduced in the same manner to make it as light as possible for handling. The frame is next covered with a pine platform a half inch thick, which is further strengthened by the addition of a brace reaching from the centre of the box on each side. This platform is bounded on three sides by hinged wings of cotton cloth, which are two feet wide, fastened to a pine frame work, and so constructed as to admit of being folded back upon the platform when not in use; at the fourth side or head of the sneak, the wing, instead of being made of cloth, is partly composed of two half-inch pine boards, eight inches wide, hinged together and extending the width of the

platform, to which the inner board is fastened by strong hinges; the rest of the wing, which is equal in width to the others, is of cloth, and all the wings are joined together by angle-pieces of the same material. A border of sheet lead three inches in height is to be tacked completely around the outside edge of the box, and inclined outwards like the flare of a boat, to throw off any little ripple that might otherwise wash in the box. Across the head, and about half way around the sides, where the tendency of the waves to wash in is always the greatest, a second circular rim of lead, four inches high, as a double precaution, should also be fastened and flared like the other. This outside rim should be placed about fifteen inches from the end of the box. Short pieces of rope about six feet in length are fastened at each end about three feet apart, to the cross timbers at the head of the box, to the middle of which rope the anchor line is attached. A second anchor is also sometimes used, which should be fastened to the foot of the platform. This, however, except in very shallow water, is needless. The whole is now to be painted as near the color of the water as possible. From the position of the shooter in the box, it is evident he can shoot only within very limited directions. The decoys must be so arranged that ducks coming to them will approach in such a manner as shall be most favorable for shooting. Not less than one hundred decoys should be used, placed square to the right fifteen yards, and to the left twenty-five yards, from this line narrowing gradually to a point about ten yards to the left of a direct line leeward, and at a distance of thirty-five yards from the sink; from this point three or four tolers ten to fifteen yards apart to leeward, and inclined towards the direction the ducks mainly approach from or pass by. Near the centre of this triangle, which is the figure the flock now represents, the decoys should be scattered a trifle more than at other places, and the ducks will endeavor to alight there. A few ducks should be fastened to the platform of the sink. This manner of placing the decoys is the one most favorable for sneak-box shooting. No matter on which side ducks may be when they observe the decoys, they almost invariably approach to alight against the wind. More decoys are set to the left of the sneak, because it is much easier for the shooter to swing his gun on that side. The shooter should be careful not to

rise up too soon when ducks are approaching. Wait until they are over the "tail" decoys, and if there is a large flock and they choose to alight, let them do so, and when they bunch rise and fire quickly.

Decoys.—Never use any but wood decoys—as all others are open to many objections. White cedar and soft pine are the best on account of their extreme lightness and ease in cutting. Pine is better for heads, being less easily broken, while cedar is the most durable. The timber should be well seasoned and free from knots and sap. For ducks two by six inches is the proper size. The timber being planed and sawed to proper lengths, is next cut around on its edge according to a pattern representing a horizontal section of the decoy. Two pieces are needed for each decoy, which must be hollowed out to the proper thickness. The head after being shaped is fitted to the top part by a screw underneath, and the two parts being roughly carved into shape as desired, must be nicely fitted together, glued or cemented firmly, and the decoy rounded and finished smooth. After being thoroughly sand-papered, it should be dampened all over so as to raise the grain of the wood, and when dry should be again sand-papered. Give the decoy a thin coat of sheilac varnish, and it will prevent the absorption of water. After this, a heavy coat of some neutral tint, which should be mixed with raw oil without any drier. This must be allowed to dry thoroughly before the colors are put on. Artists tube colors should be used, being more lively and durable than common paint. A small brass wire staple or piece of leather should be fastened to the lower part of the breast, to attach the line to; a piece of lead about four ounces in weight should be secured on the bottom lengthwise, like a keel, and the decoy is finished. Each decoy should have a separate line and anchor, a piece of lead is best for the last.

Dead Ducks as Decoys.—Having killed the duck and secured him, take a stick, a reed or the stalk of a strong weed that is stout and strong, sharpen one end to a point, which insert under the skin of the duck's breast and along up the neck just beneath the skin, into the head. Do this so that the head will hold a natural position to the body and the neck is not awry. Then wade out and plant the other end of the stick in the mud over which there is a foot of water or a little more. The body of the duck must

then rest on the water as that of a live duck does, and after having smoothed the feathers nicely. It is best to keep on setting these decoys until you have seven or eight, and if you increase the number it will be all the better.

Stools for Snipe, etc.—Stools are made of wood in imitation of the birds to be decoyed; or dead birds may be used as above. They should be placed at a proper shooting distance from the blind where the shooter is concealed.

Live Geese Decoys.—In bar shooting they should not be staked out, for the following reasons: Very few Canada geese or brant used for decoys become properly reconciled to their captivity. They remain more or less wild, and when fettered, are apt to lose their footing, on account of sudden frights, etc., and fall forwards all in a sprawl. There they remain prone, tagging and straining for hours until relieved. If wild geese are in the vicinity where this occurs, good-bye to the game; it will not be deceived. Moreover, the gunner should retain control of his decoys, in order to be able to get them away, when necessary, from the spot towards which the wild birds are heading. No one wishes to shoot his own birds, and many a time have I seen my decoy brant completely surrounded by the wild ones. In such emergencies, a strong line running into the box or blind is the only means of extricating the decoys from the line of fire, and with me it was always successful. To prevent twisting up and other entanglements, put a strong swivel at the junction of the two leather fetters. To the other end of the swivel attach a piece of cord, say six feet long. Fasten your geese in pairs to a third swivel, to which attach your decoy line, which must be large and strong in proportion to the size of the decoys. In bar shooting always locate your sunken box, the only admissible kind of ambush, within easy range of some tongue or spit of sand extending into the water, and forming a natural landing-place for the fowl to get their footing. Then give your decoys just scope enough to keep them well short of the spot where you are morally certain the quarries will land. If two pairs are worked, which are quite enough, place one pair to the right and the other to the left, when practicable, and keep them there. The fettered geese, as a rule, prefer to stand just at the edge of the water, and get as far away from the shooter's position as the line

will allow them to go. They soon learn not to throw themselves down by vain struggles, and when this by chance occurs a little slacking up of the coy line enables them to recover their feet. Where two pairs of geese are to be placed out in the same direction, keep one materially shorter than the other, to avoid tangling. The decoy geese may be advantageously accustomed to the restraint of the fetters at home weeks before using on the bar.

Squawker for Duck Shooting.—Take a tube of bamboo cane, about three-fourths of an inch inside diameter and from four to eight inches long; a plug about three inches long is fitted to one end, and after being split in two, one-half is grooved to within a quarter of an inch of its smaller end, the groove being perhaps a quarter of an inch wide and of the same depth. The tongue is a very thin piece of sheet brass, which should be hammered to increase its elasticity; it should be about two and a half inches long and from three-eighths to half an inch wide. At one end, which should be thinner than the other, the corners should be rounded. The tongue is then placed over the grooved half, the round end nearly to the extreme smaller end of the plug, and the tongue completely covering the groove. The other half of the plug should be shortened about an inch and a half from its smaller end and then being placed on the grooved part, thus holding the tongue fast, both should be pushed firmly in the tube. By blowing in the other end of the tube the call is produced; some little practice and experience is necessary to use correctly. You should pay particular attention to the different notes of wild fowl as well as the occasions of them being made, whether as a call, a note of welcome or a note of suspicion.

Turkey Calls.—Make a little box of Spanish cedar two and one-half inches long; three-fourths to seven-eighths deep, and one inch wide. Cut a piece of smooth slate so that it will lie nicely in the bottom of the box; have the top smooth and even, and no rosin will be needed. Make the box of the same material throughout, and put together with *brass pins*. Brads or glue spoil the sound, not giving sufficient vibration. If made from pieces of cigar box, be sure that no paper remains on the box, and use the thinnest portions. Another call consists of a short piece of Span-

ish cedar, with a good sized nail driven half through it; draw a piece of slate across the head of the nail.

To operate either of these calls, hold the slate between the thumb and middle finger of the right hand, while the call is held by the thumb and middle finger of the left. Above all things, do not make *over five* strokes for a single call—oftener four. If you exceed this number you will get no turkey, for a turkey can count.

Still another call is made in this wise: Take a piece of dry cedar two inches long and one and a half inches wide and a quarter inch thick, and with a narrow chisel hollow this out so that the sides are about as thin as a piece of tin or it may be a little thicker, so that it is not too delicate. It should be hollowed out within a quarter of an inch of the bottom and end, and your call is complete. Take both ends between your thumb and fingers and rub it cross-wise against the but plate of your gun, or rub it on your gun barrels. You require no rosin or anything else; simply the naked wood as made. In one hour's practice you can perfectly imitate a gobbler or a hen at your pleasure. One beauty about this is, you never make a mis-call or screech; it is perfect every time. Many hunters, however, prefer the old-time hollow bone of the turkey's wing.

Whistle for calling Bay Snipe.—Carefully dry the leg of a curlew, push out the marrow with a red hot knitting needle, plug up one end and then practice.

A Plover Whistle.—Take a round miniature tin box three-quarters of an inch in diameter and a quarter of an inch thick, or less, and a small hole exactly through the centre. If it does not answer fully on trial, ream out the hole a trifle. We have seen these whistles on sale at toy stores. A little practice will enable you to call any whistling bird.

ADDITIONAL HINTS, RECIPES, TABLES AND MEASURES.

Gunpowder.—The following table shows the composition of the different gunpowders:

Mills.	Nitre.	Charcoal.	Sulphur.
Royal Waltham Abbey	75.00	15.00	10.00
France, National Mills	75.00	12.50	12.50
French Sporting	78.00	12.00	10.00

Mills.	Nitre.	Charcoal.	Sulphur.
French Mining	65.00	15.00	20.00
United States of America	75.00	12.50	12.50
Prussia	75.00	13.50	11.50
Russia	73.78	13.50	12.63
Austria (musket)	72.00	17.00	16.00
Spain	76.47	10.78	12.75
Sweden	76.00	15.00	9.00
Switzerland (Round Powder)	76.00	14.00	10.00
Chinese	75.00	14.40	9.90
Theoretical proportions as above	75.00	13.23	11.77

Powder Measure.—The following is a table showing the difference in drachms:

1 lb. avoirdupois weight is 7,000 grains.
1 lb. apothecary " 5,760 grains.
1 lb. Troy " 5,760 grains.
1 oz. avoirdupois " 437½ grains.
1 oz. apothecary " 480 grains.
1 oz. Troy " 480 grains.
1 drachm avoirdupois is 1-16 of 437½ grains, a little less than 27¾ grains.
1 drachm apothecary is ⅛ of 480 grains, or 60 grains.
27¾ grains of powder in a drachm and 480 grains of lead in an ounce.

Number of Shot in a Charge.—Sportsmen will find the following table useful when trying new guns at a target, as it will show the number of shots a charge contains against the number the gun puts in the target—*i. e.*, presuming that no one fires more than one and one-half ounces of shot in a charge:

NUMBER OF PELLETS EACH SIZE IN 1 OZ.

Leroy, Edgar & Co.	Tatham & Bros.	Chicago Shot Tower Co.	English Shot.
No. 10.....822	848	No. 10.....854	1,700
9.....560	568	9.....596	1,000
8.....375	399	8.....434	606
7.....278	291	7.....323	350
6.....209	218	6.....216	270
5.....149	168	5.....172	220
4.....121	132	4.....146	180
3..... 98	106	3.....118	130
2..... 82	86	2..... 92	110
1..... 69	71	1..... 75	80
B..... 58	59	B..... 62	—
BB..... 49	56	BB..... 53	—

To find the proportion in one and a quarter or one and a half ounces, of course it is only necessary to add the proper proportion.

The Dittmar Wood Powder.—As this powder has come into considerable use, the following published directions for using it are important to print here:

"This powder has to be used in about the same manner as black powder; care only has to be taken not to press it into too small a space, as it is more elastic than the black. The new powder makes very little smoke, causes no recoil, does

not soil the gun, does not heat the barrel, sends a ball further than the old powder, keeps shot well together, can be kept wet for any length of time, and be transported or stowed in that state without danger from fire. It is *three times* stronger than black sporting powder, and *three times as bulky*. There are two distinct and different kinds of shot gun powder, marked—

S. A., coarse grain.
S. B., medium grain.
S. C., fine grain.
ff., very fine grain.
} All alike in strength.

The shot gun powder may be used in all the larger bores, from No. 6 to No. 14. For bores above 14 the rifle powder should be used, as this variety does not give good results unless well confined, as it is much slower than shot gun powder. At present three sizes of rifle powder are made.

R. A., coarse.
R. B., medium.
R. C., fine.
} All the same strength.

When using rifle powder fill the cartridge shell to the top, give it a few taps on the table so that the powder may settle down even, and load the bullet as usual. Do not press powder into a shell with a stick. There is no need of using a wad and lubricating material on top, as the powder does not foul the gun like black powder. For muzzle loading rifles press the powder down with the bullet, as you would when using black powder, till you feel the bullet is on the powder. *Use a good fitting bullet.* If you use the powder in pistols or revolvers, without shells, do not ram or force the bullet with a lever into the chamber, as in this case you will confine the powder too closely. Simply use force enough to permit the bullet to rest upon the powder, having top of bullet level with top of chamber. The rifle powder is the proper kind for small arms."

Directions for Loading Shot Guns.—Use about the same *measured* quantity as you would of black powder. *If this does not give* satisfaction use a little more, up to half a drachm measure. This will give you the same bulk as black powder *after the wad is pressed down.* Give a few taps to the charge to settle the powder evenly, and you will always have the same *weight* (that is, about one-third) as you would have by using an equal *bulk* of black powder. In brass or metal shells use a wad two sizes larger than bore, and in paper shells use *one size larger.*

By carefully following the above detailed directions for shot guns and rifles, *effectiveness and safety* are secured.

If the powder becomes wet, spread it on paper and it will dry quickly without injury to its power. If desirable to store it in an exposed situation, it can be kept wet in a cask and afterwards dried in the air or in a room. The most delicate tests thus far made have not exhibited the slightest trace of injury to the finest barrels by the products of combustion.

Concentrators and Wire Cartridges.—Concentrators are sections of cartridges or shells inserted in the shell to produce close shooting. Wire cartridges are woven wire receptacles in which shot are mixed with bone dust, the object being to cause the shot to hold together or "ball" for a certain distance, thus carrying closer and farther.

Flannel Shot Cartridges.—A cheap long range shot cartridge is made of small bags of flannel or cheviot cloth about two inches long, filled with, say one and one-eighth ounce No. 5 shot, loaded into brass shells containing three and one-half drachms Hazard ducking powder. They are good for seventy-five yards.

To Load Paper Shells.—Use one card wad and two Ely's pink edge, or one card wad and one Ely's thick felt on powder and one Baldwin wad on shot. All wads should be the size of the gun, although many persons use a size larger.

When loading, first see that the caps or primers are pressed well in their places, and do not project above the heads of the shells; then place the shell on a block with a hole under the cap, so deep that a stray shot or other small article will not give something for the cap to rest on. There will be no danger of an accidental discharge with any reasonable usage in loading or ramming home the charge.

To Load a Choke Bore.—Charge with three and a quarter drachms of C. & H. No 6, and one and an eighth ounces of No. 6 shot, and use over the powder a thick, soft felt Ely's wad, and over the shot half of a similar wad, cut even and level with a sharp knife. The paper shell should not be turned down more than will suffice to just hold the wad in place. Buckshot can be used in a choke-bored gun, provided they chamber in the muzzle.

A Shell Holder.—Take a dry pine board two inches thick, eight inches wide and long enough to hold the required number of shells. Mark it in one and a quarter inch squares for ten-gauge shells, or a little less for twelve-gauge. Bore a hole of the right size for the shell to fit snugly through the centre of each square. Fit a thinner board on one side of this, and hinge it there so it can be thrown back to put the shells through. Bore half inch holes through this just opposite those in the thick board. Now supposing the shells are empty, with the old caps on, throw back the light board or lid,

put the shells through from that side, close it, lay it lid side down on the table, and each shell stands ready to have the cap punched out. Turn it, open the lid and re-cap. Close the lid and turn again and they stand muzzles up ready to be charged. Of course this contrivance is not intended to be carried while in the field, but it is a great convenience in loading, and is just the thing for carrying them in a wagon. If desired a neat box can be made to inclose the whole.

To Clean Brass Shells.—1. Vinegar, or a weak solution of oxalic acid will brighten the shells: but for cleaning the inside of the shells, use Ronall's metal shell cleaner.

2. Rub the shells with a mixture of two parts sulphuric acid, two parts water, and one part pulverized bi-chromate potash, and then wash them in hot water. This will render a green and corroded shell as bright as new without injuring it in the least; but this recipe is of no use to those who like a verde antique appearance inside and out of their shells.

3. One ounce cyanuret potassum, one pint of soft water, "dissolve;" put this into a quart preserve jar with a glass cover. Set it down by the fire where it will get warm, put the shells into it, as many as it will hold, for twenty minutes or half an hour; take out with a stick and souse with warm water two or three times; then dry the shells before a hot fire; they will come out perfectly clean. Set this mixture away for future use and mark it "poison."

Fulminate for Caps and Cartridges.—Dissolve by a gentle heat 100 parts, by weight, of mercury in 100 parts, by weight, of nitric acid of a specific gravity 1.4, and when the solution has acquired a temperature of 130° F., slowly pour it through a glass funnel tube into 830 parts, weight, of alcohol, of the specific gravity of .830. When effervescence is over, and white fumes cease to rise, filter through paper wet with cold water, dry (the residue) by steam heat not exceeding 212°.

The percussion composition used by the United States Government consists of fulminate of mercury, 35 parts; pulverized chlorate of potash, 16; glass dust (sifted between 40 and 140 meshes per inch), 45; gum arabic solution 2; gum tragacanth solution, 2; total 100. Mixed and pressed moist into a shell or cap and allowed to dry before loading. See Ordnance Mem. No. VIII.

To Brown Gun Barrels.—Tinct. of muriate of iron; one ounce, nitric ether, one ounce; sulphate of copper, four scruples, rain water, one pint. First, securely plug up both ends of barrels, leaving one plug in each end of sufficient length to be used as handles; then thoroughly clean with soap and water, after which cover with a thick coat of lime, slacked in water, and when that has become dry remove it with an iron wire scratch brush; this is to remove all dirt and grease from the barrels. Then apply a coat of the fluid with a rag, and let it stand for twenty-four hours, when a slight rust will have appeared; then take barrels and immerse them in a trough containing boiling hot water, after which scratch them well with the scratch brush. Repeat this until the color suits, which will be after three or four applications. When completed, let the barrels remain in lime water a short time to neutralize any acid which may have penetrated. Take great care not to handle the barrels during the operation, for the least particle of grease will make bad spots.

To Darken Gun Stocks.—Get a few crystals of permanganate of potash, dissolve them in water and rub the stuff well into the wood. It will cause the stock to assume a rich brown hue, and can be oiled over with raw linseed. This is a very good black walnut stain for any hard wood.

Cleaning Guns.—Cotton waste is the handiest material for cleaning either muzzle or breech loading guns, and can be bought for about twenty-five cents per pound anywhere, a little bit going a great way. The best cheap pocket cleaner for breech loading guns is a piece of copper wire, about No. 17, with a loop twisted in both ends, through one of which a piece of waste can be pushed. This can be rolled up in a small coil and carried in any pocket without inconvenience.

Rust in Gun Barrels.—Use Riggs' Belmontyle oil. Also a thin coating of shellac dissolved in alcohol is excellent; also a coating of best copal varnish, first heating the barrels to the temperature of boiling water, not any hotter, or they may be injured; let them remain hot for half an hour, and then rub them with a soft rag. The barrels will show no sign of the varnish. Common tallow is also very serviceable; rub it on with a piece of flannel, and wipe the inside of the barrels with it also. Blue ointment is the

best preventive of rust, and is cheap and easily applied by mixing it in sperm oil, and passing it through the barrels a few times with a rag. Sperm oil is best for gun locks ; wipe it on with a scrap of chamois. The rust which is sometimes found on the bright part of locks is easily removed with a slip of oilstone, and the gummed oil and dirt with an old tooth brush dipped in benzine or naphtha which evaporates and cannot hurt the metal.

To Preserve Iron and Steel from Rust.—Take rosin 120 parts ; sandarac, 180 parts ; gum lac 50 parts. Heat gradually, and add 120 parts of turpentine. Heat again and add 180 parts of alcohol. Filter and cork tightly.

To Soften a Leather Gun Case.—Soak it in water until it is wetted through, hang it up mouth downwards for two or three hours ; then by stretching it over a "hay fork handle or round, straight stick," whip it into shape ; next pour into the case as much castor oil as is necessary to thoroughly cover or grease the inside of the case, and apply the oil to the outside as often and as long as the leather will absorb it ; dry in the sun, or a warm room, occasionally rubbing and bending the case with the hands. After this treatment it will be more soft and pliable than when first made.

Lacquer for Guns.—To prevent guns rusting in sea air, lacquer them on the outside with a very thin varnish of shellac and alcohol. This should be laid on quickly with a brush, and will be almost imperceptible. A dose of the same will not hurt the mountings, but will effectually prevent their rusting, even if the gun is dipped in salt water ; and remember that no matter how carefully you clean the inside of the barrels after a day's shooting on the coast, you will do well to watch your gun for a day or two and remove the rust which is found to form, which, if neglected will eat in and leave an ugly mark.

Pad for Target.—The best substitute for a Pettit pad (not made in this country), is stiff hardware paper ; of this thirty sheets would be good penetration, and have them large enough to admit of a thirty-inch circle being drawn from the centre.

OCEAN, LAKE, AND RIVER.

THE ART OF FLY FISHING.

Rods, Reels, Lines and Lures.—While verbal instruction is useful to a certain extent, the art of angling cannot be wholly imparted to the student; it must be acquired by assiduous practice, and a careful study not only of the implements of the craft and their use, but of the structure and habits of the fish and the localities which they inhabit. In a word, the complete angler must be a naturalist, just as a physician must be acquainted with the origin, nature, and properties of the drugs he administers.

As to implements, we maintain that there are strictly but two distinct classes of fishing rods, the long, slender, tapering, tough, and elastic fly rod, and the shorter and stiffer trolling rod, just as there are but two classes of guns, the rifled and the smooth bore. The bait rod is a compromise between the fly rod and the trolling rod. It is stiff like the latter, but much longer, (in reality has an additional joint,) and is carefully tapered, so as to secure uniform elasticity and action from but to tip, qualities requisite in the fly rod, but not so carefully developed in the bait rod, because the work required of it is quite different, the methods of casting the bait and the fly being quite as diverse as may be imagined.

[For full description of bait rods, and instruction in angling with all kinds of baits, which might properly be included in this division of the *Gazetteer*, see section on Black Bass fishing in Western Waters, page 3.]

Difference in the material of which rods are made really constitutes variety in rods; and in the selection and manufacture of this material, excellence consists. A rod of hickory, ash, lance-

wood, greenheart, iron wood, cane, or mahoe wood,* may be intrinsically better than a rod of split bamboo, but the *best made* split bamboo is the superior of the best made rods of the other material, in our private opinion either for bait or fly fishing, for the reason that it combines the qualities of all the rest, with lightness added, affording the angler the most sport for his efforts.

This quality of lightness is a most appreciable desideratum, especially in a salmon rod, and a not trifling advantage to the angler who has a whole day's work before him. As every veteran knows, each additional ounce tells painfully in the long run on arms, back, and shoulders. Abstractly, there is no better rod than the West India cane in its crude native state; but as this is inconvenient to carry, on account of its great length, ingenuity has contrived a jointed rod which occupies a comparatively small space. Besides, in any given entire cane there are liable to be flaws, which impair its strength and effectiveness; but by using its choicest parts, which are sawed out and fitted together and firmly whipped with silk, the manufacturer is enabled to produce an implement as perfect as it is possible to make. In trout rods this quality of lightness is really not so essential, and it is not unusual to find professional experts who prefer a rod made of some other material than bamboo.

As we have said, rods are made in joints or sections simply for convenience; but as the metal ferrules, being stiff and unyielding, impair the uniform elasticity and play of the rod, there is a growing tendency in salmon fishers to have as few joints and as few ferrules as possible. Hence we find some eighteen feet rods made of only two pieces, and united by a splice, the parts that join being bevelled and firmly lashed together when in use by a waxed end, the ferrule

* The best bamboo used for rods comes from Calcutta. The bamboo usually sold at country stores is a reed, or else the Chinese or Japanese variety. The Calcutta cane is clouded; the others are yellow. Greenheart and lancewood are imported chiefly from Demerara and the West Indies generally. The former is heavy and very tough; the latter lighter and possibly more brittle. Mahoe wood is indigenous to Cuba, and is used for the springs of *volantes*. Sometimes, though seldom, angling rods are made wholly of greenheart, or even of lancewood, though the latter is generally preferred for tips; ash, basswood, and greenheart are used for first and second joints. Split bamboo rods frequently have lancewood tips. These woods are imported in log by Terhune, of Canal street, this city, and one or two other dealers. It is difficult to find a stick or cane fit to make rods of. (See article elsewhere.)

being dispensed with altogether. Other rods of three joints have the first and middle one connected by a ferrule, and the middle and tip by a splice. Some makers use a screw ferrule, a device which renders loop ties unnecessary, and prevents the rods from becoming shaky at the joints by wear. We prefer a salmon rod of not more than eighteen feet in length, though rods of twenty-one feet are used; but they are ponderous affairs. An expert can make a sufficiently long cast and do all necessary execution with the former, while the only advantage of extra length is, when a fish is *hors du combat*, to lift the line more easily over rocks and boulders that may interfere with a clean run.

Trolling rods are usually made of undressed bamboo, and are about nine feet in length. They are stiff, but have elasticity enough to enable the angler to feel his fish readily when it bites, and to hook him with much more certainty than with a hand line. In securing a fish after it has been hooked, the trolling rod is all important, for it permits a delicate manipulation and handling of the fish; whereas, if a hand line were used the hook would very often tear out and let the fish escape.

The selection of a rod requires a certain keen, acquired sense of sight and touch, which adepts only possess—sight to detect any variation from a perfect arch, and a touch that instinctively determines the nice balance of the rod, and any sag or unequal distribution of elasticity throughout its entire length when it is swayed backward and forward by the hand and wrist. We would advise all novices to let a professional select their rods for them. Discard all rods with patent attachments of spikes, and the like, to "hold" the rod. Taboo those monstrosities ingeniously contrived "for convenience," called "trunk rods"—rods stiffened with a multiplicity of ferrules, and suited to all kinds of fishing, from a minnow to a mascalonge. They are fit only for those who wish to still-fish with a worm and a pin. We would prefer to put a fine delicate implement even into the hands of a novice, rather than a ponderous stiff affair—that is, if the novice can afford to break a half-dozen per season until he has learned his art. One thing is certain, no one can become an expert fly fisher by practice with a bean pole or wattle, no more than he can play at battledore with a two pound weight. Also reject any rods that have the but squared off where the hand grasps

it, where the rod proper joins the handle, so to speak. The object of the maker of this kind of rod is to secure lightness, but he does it at the expense of strength and every other requisite. A proper rod should have a suitable bulge of the but to fit the hand, and from it taper gradually and uniformly to the tip. The rings should not be too large, and yet large enough to permit the line to render freely through them.

As to reels, there are many varieties, made of nickel, brass, or rubber, some of entirely new designs, and aiming by their construction to obviate serious faults that pertain to the original patterns, now passing into disuse. Strictly speaking, there are but three distinct classes of reels, the salmon reel, holding two hundred yards of line, the trout reel, holding twenty-five yards, both of large diameter in proportion to their width, and the trolling reel, that should hold at least fifty yards. The width of the latter is nearly equal to its diameter, say three inches. The salmon reel is about four inches in diameter, and the trout reel two inches. In reels, as in rods, the requisites are strength combined with lightness, and a construction that prevents the line from fouling around the crank when in play. In angling, the reel performs a most important part, and its use and action should be in perfect accord or correspondence with the play of the rod and line. To render or retrieve, rapidly or slowly, according to the exigencies of the case, giving or taking inch by inch of line when the fish has the but, delivering freely when he runs, or gathering in promptly when he makes his rushes toward you, these are the objects of the intelligent angler, and the reel should perform its duty promptly, or else the captive will either shake off the hook or tear it out. To meet these requirements, clicks and multipliers are employed. The click checks the line from rendering too freely, and the multiplier of course gathers in the slack with multiplied speed at each revolution of the crank. Some recent inventions have the click contrived so as to graduate the strain upon the line, checking it almost entirely, or permitting it to run without any check at all; and there are those known as balance reels; but both are open to objections which need not be explained here. The most serviceable for trout and salmon are the simple click reels. Balance reels are more frequently used for trolling. The reel should be invariably shipped behind where the hand grasps the

rod. We prefer the nickel reel, as brass is apt to tarnish; though for salmon the lightness of the rubber reel is a very important desideratum.

For lines that are used on reels, we prefer linen waterproof laid lines, though some choose silk, or a tapered braid of silk and hair. The objection to the latter is that the minute ends of hair fray by wear, and prevent the line rendering freely through the rings of the rod. Silk does not render as freely as a linen line that has been used two or three times. For trolling, however, a cotton line braided, so that it will not kink, will answer well enough, besides being vastly cheaper. Waterproof linen trout lines cannot be bought for less than five cents a foot. A good salmon line will cost from fifteen to twenty dollars.

With regard to the durability of tackle, very much depends upon the care taken of it. The neglect of a single winter will cost hundreds of dollars, if a man's stock be as large as that of most professional anglers. Rods to be laid aside for the winter should first be carefully examined, all defects and damages repaired, the ferrules and bands thoroughly cleaned, new plugs fitted to the joints, and rings supplied where missing. Where a joint has been fractured or broken entirely, the parts should not be patched or spliced, but a new one obtained. Negligence in this matter will be found a poor winter's investment when the rod comes to be used again in the spring. Take the rod apart, wipe the joints dry and lay them away in their case in some apartment where the temperature will be uniformly as near to fifty degrees as possible. By no means let the rod stand near a chimney or furnace flue; and the other extreme of cold in a garret or outbuilding should be avoided. Changes of temperature destroy the pliancy and stiffness of the rod. Where the rod has no leather-case, but is kept in a bag, never tie the parts together tightly, as it subjects some portion to an extra strain, thereby impairing the equal distribution of strength throughout its entire length. For the same reason a rod should be laid flat on a shelf if possible, instead of being stood on end in a corner, and under no circumstances, either when in use or in ordinary, should it be left jointed and hung on pegs. Really, the best way to keep rods perfect is to put them in a shallow box, wide enough to hold them when laid side by side, and two or three inches longer than

the longest. There is always some spare room in the house where this case could be laid along the surbase and not be in the way or seem unsightly. As regards tackle, all lines should be reeled off and stretched from one end of the garden to another on some bright and sunny morning, and left an hour in the air to dry. They should then be overrun lightly with a bit of woolen cloth or chamois, to remove any taint of mildew, sand, sea salt, or other extraneous matter, and then be wound upon the reel not too tightly and put away with the reel nicely cleaned. If frayed portions are discovered they should be condemned, and the good parts kept for miscellaneous uses, which will be found frequent enough. With respect to leaders, flies, ground tackle, etc., it is admissible to defer immediate attention until some fine evening when a cheerful blaze and indoor comforts are heightened by the blustering weather without, and then with his stock spread out upon the sitting-room table, one can summon the aid of the little folks to assort the several varieties. As in the case of lines, all worn and imperfect flies, all frayed leaders, and half-broken gut lengths, should be rejected as past service, for the great desideratum with a careful angler is to keep his gear in as perfect condition as possible, that at no time he may be aggravated through negligence by an untoward loss. Bait boxes and creels should be thoroughly cleansed with warm soda water, and when dried it is well to sprinkle them with a little carbolic acid, or a wash of carbolic soap can be used. Never keep your fishing and shooting gear in the same drawer or chest. Above all else, guard against the *ravages of moths.*

When the spring comes round, look again to your tackle with careful inspection, and see that all are in perfect order. Test your line foot by foot for frays and weak spots. See that the ferrules, rings and eyes of your rods are tight, and no fractures in the joints. Above all, look well to your flies; reject all specimens that have been injured by use, and all frayed gut lengths. It is better to throw away a handful now, than to lose flies and heavy fish together the first time you fasten to a rise. If your outfit is not complete, nor your assortment of flies full, replenish at the tackle shops.

The angler being now prepared with rod, line, reel, etc., we will presume, is ready to experiment in fly casting. The methods

of casting a fly vary according to the character of the water to be fished—whether it be lake, river, or stream, or whether the angler is to wade, or fish from a boat, or the bank. There are a few general rules that govern, however; and the first to be observed is to *keep out of sight*. To enable the angler to do this a long cast is frequently indispensable. If fish were not shy, the angler might dispense with flies, and walk up boldly to the water and dip them out with his hands. But to cast a long line without bungling, requires studious practice. For a proper cast, the line should not only be delivered straight and evenly, without kinks, coils, or bights, but the flies should be laid lightly on the water, as the natural flies settle. Hence the line, and the casting line, must be delicate in size and texture, and the flies must be small, so as to make no splash when they fall. It is because such fine tackle is required, that the handling of a heavy fish becomes difficult; for it is apparent that to lift its weight on the line would part it. To relieve the strain a flexible rod is required; and the rod has its very important part to play throughout in killing the fish. The fish must be killed on the rod, and not on the line. To exact full service from a rod, a perfect arch (longer or shorter,) must be maintained from the moment a fish is hooked until he is landed. The management of this arch in motion is the science of angling. The rod has of course, its proper functions to perform in making the cast. The essential qualities of a rod are elasticity and stiffness; first, a uniform elasticity that is evenly distributed and maintained throughout its length from but to tip; and second, that peculiar quality of stiffness which acts with a *yielding resistance*, preventing the fish from exerting its full strength on the hook, the leader, or the line just as elastic traces would prevent a horse from exerting his full strength in drawing. No rod will throw a line deftly unless it possesses these requisites, and in the selection of a rod its weight, length, and suppleness, must be gauged by the physical properties of the purchaser, because the same rod, like the same gun, will not serve all sportsmen alike. The angler ought to be able to tell when a rod feels well balanced in his hand, just as he does a billiard cue, an oar, a gun, or a croquet mallet. Given the rod and line, we need such a reel as will deliver the line freely, yet not so rapidly as to permit it to overrun, and we accordingly secure a

light pressure or check by the "click." The click also telegraphs to the ear what the fish is doing, and in this way renders a service greater than is generally supposed.

The importance of using small flies, even in discolored water, should impress itself upon the angler. Lightness and neatness of form are characteristics of river insects, and therefore a serious objection to the flies in common use, and at the tackle shops, is that they are much too bushy, thereby not only exposing their deception more quickly, but preventing by masses of feathers the trout from hooking themselves when they rise.

A second rule in angling is, to tread lightly along the streams, and when in boat, to avoid noises that cause vibrations. It seems to be settled by scientific tests that fish do not hear, but their perception through the nerves of feeling is very keen, and sounds are easily communicated through the water by sudden jars, the careless dropping of an oar, or deep bass tones of the voice. It is well known that a deaf person can hear sounds of a voice or instrument, if a hard wood stick be placed in his teeth, connecting with the object emitting the sounds.

The angler about to whip a water should first straighten his snoods and leaders by soaking them in a basin of water; after which he can keep them tolerably straight by winding the cast around his hat. At a proper distance from the angling place, let him put his rod together, first adjusting the reel to its place, then the tip and second joints, and the second joint and but last, keeping the hands close to the ferrules and as near together as possible. Next reeve the line through the rings and draw it off from the reel until its length is equal to a little more than half the length of the rod; then, with the rod held perpendicularly, unless adjacent objects prevent, bend on the casting line, hook the tail-fly or stretcher into one of the bars of the reel, and wind up until the line is taut. Put the ferrule plugs in your pocket so as not to lose them. You are then ready to proceed to business.

The casting line should be not less than seven feet in length, nor more than nine, of best selected gut. The tail fly should have simply a loop, and the bobbers gut lengths; that of the top one, or hand fly, somewhat longer than that of the middle fly, so that when the line is raised, and the rod in motion, both will touch the

water gently alike. Two flies, four feet apart, are enough at any time, and where there are weeds, bushes or snags, or the trout heavy, it is wise to use only a single fly. The chance of hooking your fish is increased when two flies are on, but the chances of landing them are much diminished. It is unpleasant to catch a weed with one hook and a fish with the other, or to have two heavy fish run contrariwise and carry off your line. Three flies are admissible only when the camp is out of provisions, or the trout weigh no more than ninety to the quart. The landing net should be deep and baggy. The most convenient are made upon a brass frame with hinges, so as to fold into a very small compass.

In fishing a stream, it is sometimes necessary to pass through thick brush. This can be done with dexterity, if the angler hold his rod horizontally, pushing it through, but or tip foremost, according to circumstances, the former being preferable. Having approached the bank, select your casting place with judgment; we mean the spot which you propose to test for a rise. A previous knowledge of a stream gives one a great advantage everyway, by enabling him to approach so as not to disturb the fish, and also to waste no time in testing inauspicious or improbable places. Choose also where you will land your fish, and determine how to provide for any emergency that may arise. Having calculated the length of the line you propose to cast, see that you have room enough for your back line, so that you may avoid being hung up in trees or caught in a rock or stump. Note the sun, and observe that your shadow does not fall on the water. If it be a bright calm, don't be in a hurry to cast, but wait for a ripple on the water, or for the sun to go under a cloud, as your chances for a rise are thus increased ten-fold; always remembering that in trout-fishing nothing is gained by being in a hurry. If the wind blows briskly in your face, don't attempt to cast against it, as your flies will only get into the trees, but select a bend in the river, or wait for a more favorable opportunity. If you wish to cross a stream to change position, walk to the nearest shoal and wade to the opposite side.

When everything is auspicious and you are ready to cast, grasp your rod in the right hand above the reel, and hold the stretcher fly lightly between the thumb and fore-finger of the left. Then throw up the tip of the rod gently, at the same time letting

go the fly, and when the line is at its full length drop the tip and you will be surprised to see how gracefully the fly will light on the water twenty feet distant. If you discover that you are to fall short, or go too far, recover the line before it touches the water and try again. If the fly should touch the water and fail to provoke a rise, trail it lightly and briskly along the stream in a semicircle until you are obliged to take up the slack, and then cast again. After casting from one stand three times over a spot, including the width of the stream, and failing of a rise, give the fish a yard more line, by drawing it off the reel with the left hand; then raising the rod smartly, take up the slack, throw the rod back of the shoulder, and when the line has passed behind to its full length, project the tip forward as if you were going to strike the water, observing to never let the rod drop below a position horizontal and parallel with the water. The movement we have described is technically known as casting. We will make it still plainer, as it must be practiced by one desiring to become proficient. We will suppose the angler standing up to his knees in mid-stream with his line trailing down with the current to its full length in front of him. Draw off enough line from the reel to lengthen the cast as much as is required; keep the elbow of the right arm at ease, but well toward the body, and the wrist flexible. Raise the rod evenly and without jerking, with force sufficient to lift the line from the water; throw the tip upward and backward until it takes a position over the shoulder at an angle of forty-five degrees and no more, keeping the tip a trifle outward, away from the body; calculate the length of time required to straighten the line out behind to its full length, and then bring the rod forward with vigor, striking down squarely and directly in front of you, always remembering on no account to let the tip drop as low as the surface. It will be perceived that in the upward motion the thumb points outward, and with the downward motion it turns inward. This is the infallible key to the whole situation. By practicing this combination of movements one will learn not only to lay out his cast on the water in good form, but by increasing the force to cast great distances. At no time should the efforts be jerky. The body should be well poised, and the arm move with the evenness and method of a pendulum. With a long line a sudden upward

jerk is liable to break the rod either at the first or second ferrule, or to throw the line out of its natural parabolic orbit; while a too sudden or premature projection of the rod forward will snap off the flies, tangle the line, or catch the seat of one's corduroys with the hook, insufficient time having been given for the line to straighten itself behind. Inexperienced anglers are annoyed by the snoods chafing and breaking off at the heads of the flies; the cause is imperfect casting. The fly being heavier than the delicate line, moves faster through the air by the impetus given it, and when a quick jerky motion is made in casting, or a too much up-and-down motion is given to the rod, the fly has to drag the line along like a shot taking a life-line to a wreck, and lights on the water with a thud that sends it back at right angles with the link or loop. The friction is more than the strongest gut can stand.

In lifting very long lines from the water, it is desirable to start them first, and then withdraw them wholly, otherwise the weight and sag is liable to part the tackle, and break or strain the rod; also before making the forward cast, count the time it has taken to withdraw the line from the water and bring the rod to its position over the shoulder. The flies will then have time to traverse the entire arc which a well-made cast requires.

When about to change position on the stream, reel up and take your line out of the water, unless you are wading, when it may sometimes be preferable to let the line drift down ahead of the angler, if the current be swift. Wading possesses several advantages over fishing from the bank, for it enables the angler to fish every part of the stream which the other method does not, and gives him more casting room; the fish are not so easily frightened, and when hooked are more easily landed. Fish can see in clear water with great acuteness, but the refraction seems to impair their vision. Fish have a habit of backing slowly down stream as the angler advances, not seeming greatly disturbed; but the moment they do take fright they scoot up stream like lightning. Streams may be fished up or down at option, though down stream is the best. The chief advantage of fishing up stream is that while you are playing your fish, you do not alarm others above you, as you are supposed always to lead your captive down stream.

Let us observe that fish always lie with their heads up stream. Even when they dart down stream affrighted, as they sometimes do, they invariably stop very soon and round to, as a yacht does when she luffs into the wind. Salmon and shad when descending to the sea, do not make for it in a bee line, but drop down stream gradually, keeping their heads always up. Moreover, as for trout, the biggest always lie in the wider and deeper stream, so that, in fishing *up*, the angler is constantly fishing away from the big fellows and up toward the smaller ones. In casting, too, it is important, as has been said, to have your line kept straight; and in fishing down stream the current does this for you, while in most of the casts made in fishing up stream, the line runs back on itself, and is constantly getting into slack turns and bights. Again, it is less tiresome to fish down stream when wading, than against the current which is sometimes so strong as to make progress against it difficult. More than all, the angler can *see* his fish before him, when he is moving down, but never when he is moving up. We are aware that some proficient anglers take decidedly opposite ground, but they must refute what we have presented as *postulates*, (not arguments,) before we shall yield our position. Circumstances, however, alter cases. A good rule to observe would be to fish down stream if the current be swift, and up stream if it be sluggish; always supposing the wind to be favorable. As between worm fishing up stream and fly fishing up stream, the former is preferable.

It is useless to waste time in whipping every foot of a stream. Trout lie where cool bottom springs bubble, or lateral brooks come in, or food gathers, the depth of water favors, or shade and protection serve. The strongest and biggest fish preëmpt the choicest places and deepest pools, but good fish are often taken in swift water flowing about six inches deep over pebbly bottoms where the conferva attaches itself to stones and sways in the current, affording both food and lurking places. In large rivers it is useless to fish except at rapids, or where a lateral stream flows in. Casts may be taken when wading, or from the bank, according to depth of water and other circumstances. Where the river makes short turns there is a deep hole on one side and a corresponding sand-bar or flat on the other. Trout are likely to be found in all

these deep holes, because the current carries the food there; and for the same reason they are also to be found under the bank opposite to the wind. Where a river is divided by an island or patch of weeds, a cast will be rewarded at the foot of the island at the edge of the ripples. In spring the fish are much scattered, and can be taken almost anywhere, as they are foraging for food, the insects not yet having been hatched out. Later in the season the trout's food is swept in plenty and variety to their dining-rooms in the holes under the bank. And in autumn nature teaches them to resort to the springheads and smaller tributaries for the purpose of spawning. Trout feed chiefly at night, and hence are more readily taken on dark and cloudy days, and between sunset and dark.

In using the fly the object is to imitate the movements of the natural insect as nearly as possible, and the angler often exercises great ingenuity in so doing. To drop the line naturally on the water, and then to keep it endued with life, is the stratagem. From the moment the fly touches the water the angler should keep his eye on it. Trout often feed a little under the surface; they do not always break when they rise, but quietly suck in the fly. The angler can frequently detect a quick movement of a dark object beneath the surface, or a sudden flash of light, which he knows to be a fish making for the hook, and he instinctively raises the tip of his rod and hooks it. A novice might have let a dozen of these opportunities pass. Often the whereabouts of a trout is betrayed by a break or a leap from the surface, and the wide-awake angler will make it his business to toss his fly over the spot sooner or later. Sometimes the trout rush at the lure like a flash, leaping clear over it in their eagerness. They are difficult to hook then. A fish will *hook himself only* in cases where the fly first touches the water at the end of a straight line, or when the line is being withdrawn smartly for a new cast. In all other cases the skill of the angler must be employed. If this "strike" be made with vigor or desperately, either the trout will be jerked high in the air, the tackle will be broken, the hook will tear out, or, what is more probable, the hook will miss altogether. Then the awkward effort will scare the fish away, and the angler must proceed to another place. How to hook a fish cannot be told; but if the angler will school

himself never to raise the arm, but simply to use the wrist, lifting the thumb slightly when a fish rises, his lesson will be nearly learned. He must remember that his wrist is the fulcrum of a long lever, and that a slight movement there will produce an astounding demonstration at the other end. It is apparent that the offer of an undesirable fish can often be declined. If fish in a pool be frightened, give the pool a half hour's rest.

Having hooked the fish the next thing is to handle him. If well hooked, he will go to the bottom, and if slightly hooked he will flounder about on the surface. Upon this showing the angler determines his mode of procedure. In any case put him into the basket as soon as possible. Do not work him against the current more than can be helped. If you see the strength of your rod tested too much, give him line; when he yields, reel up. The point is always to keep him well in hand, as you would a horse—always to feel him. When necessary to lead him out of weeds or dangerous places, advance the but of the rod. It will stand an enormous strain. Keep the line always under your thumb, with the thumb on the rod. If the fish leaps, lower the tip of the rod so as to give the line slack, otherwise he will tear the hook loose. Having at last taken the mettle from him, reel in short, throw the rod back over your shoulder, and slip the landing net under him. If you have no net, lead him to the bank and draw him out, if he be a large one. Small ones can be lifted by the line.

When you unjoint your rod take hold of the ferrules with your hands as nearly together as possible, and when you draw upon them give the parts a slight turn in opposite directions, and the rod will usually separate without difficulty. Many good rods are wrenched or broken through ignorance in this single particular. Should the ferrules resist all ordinary efforts, heat them gently. [For instructions relating especially to Salmon fishing, see Eastern Coast Fishes, pages 263–5.]

Table of Approximate Weights of Fish according to their Lengths.—In the absence of a spring balance, the following table will be found useful:

A TABLE OF APPROXIMATE WEIGHTS OF FISH ACCORDING TO THEIR LENGTHS.

Length.	Weight.							
	Salmon.		Trout.		Grayling.		Pike.	
Inches.	lbs.	oz.	lbs.	oz.	lbs.	oz.	lbs.	oz.
9	.....		0	4¾	0	4½	.....	
10	.....		0	6¾	0	6¾	.....	
11	.....		0	9	0	9½	.....	
12	.....		0	11¼	0	10¾	0	8½
13	.....		0	14¼	0	13½	0	11
14	.....		1	1¾	1	1	0	13¾
15	.....		1	6	1	5	1	0¾
16	.....		1	10½	1	9½	1	4¾
17	.....		1	15¾	1	14½	1	8¾
18	.....		2	6	2	5	1	13
19	.....		2	12½	2	10½	2	2
20	.....		3	4	3	1½	2	7½
21	.....		3	12¼	3	9½	2	13¾
22	.....		4	5¼	4	2	3	4¾
23	.....		4	15¾	4	11½	3	12¾
24	5	6¼	5	10½	5	5½	4	4½
25	6	1½	6	5¾	.....		4	13½
26	6	13¾	7	2½	.....		5	7¼
27	7	10¾	8	0	.....		6	1½
28	8	8¾	8	15	.....		6	13
29	9	8	9	14¾	.....		7	9
30	10	8	10	15	.....		8	6
31	11	9¾	.....		.....		9	3¾
32	12	12½	.....		.....		10	2½
33	14	0	.....		.....		11	2¾
34	15	5¼	.....		.....		12	2¾
35	16	12	.....		.....		13	4½
36	18	3	.....		.....		14	7½
37	19	12	.....		.....		15	11¼
38	21	6½	.....		.....		17	0
39	23	2	.....		.....		18	6
40	24	15½	.....		.....		20	0
41	26	14	.....		.....		.....	
42	28	14½	.....		.....		.....	
43	31	0	.....		.....		.....	
44	33	3¾	.....		.....		.....	
45	34	8½	.....		.....		.....	
46	37	15¾	.....		.....		.....	

Varnish for Fly Rods.—Take as much shellac as the alcohol used will dissolve. Spread evenly, dry thoroughly, put on three or four coats, and rub down with rotten stone.

2. Take three ounces best gum shellac, one and an eighth ounce gum benzoin, half an ounce gum sandarach, half an ounce gum mastic, one quart alcohol 90 per cent. proof; pulverize separately and add the alcohol. Put in a black bottle and set in the sun, shake often, then pour off. If too thick, add alcohol; if too thin, take out the cork. Apply with linen rag.

To Waterproof Fish Lines.—Dissolve paraffine in naphtha or benzine; also, boil

linseed oil by a process that will neutralize or destroy the gelatine which all oil contains a small portion of, and which unless removed will leave the lines stiff and hard, which is of course to be avoided. J. Babcock, 21 Magazine street, Cambridgeport, Mass., prepares lines in this way. C. Tappan, of Greenwood, Mass., uses the first process.

To Color Fish Lines.—Soak them in green tea, coffee or a solution of indigo. Warm fluids preferred.

To Keep Trout Fresh.—Trout carefully dressed may be preserved several days fresh and sweet without ice or salt, by wrapping them in the long white moss found in the swamps in the vicinity of lakes and streams where trout are caught, and placing them in a cool shady place; a hole in the ground covered over with a foot or more of earth is a good place.

To Preserve Fish.—Take your fish and split it open (if large, say three pounds and upwards, on the back); wipe it clean, but don't wash it; lay it in your keg or barrel, skin down, then sprinkle over each layer of fish a mixture composed of one-half salt and one-half Muscovado sugar, putting on about one-half the quantity usually used in salting fish. On arrival home repack, using a very small quantity of the same mixture. They do not get so salt as to require freshening before cooking, merely requiring rinsing in fresh water; neither do they lose their flavor, nor become dry, as trout always do when salted in the usual way. They can be kept for three months.

Lotions and Preventives for Mosquito Bites.—Olive oil, two ounces; camphor two drachms; carbolic acid, one drachm; acetic, one-half drachm; oil cedar one drachm; oil pennyroyal, one drachm. Mix.

2. Oil of pennyroyal, four ounces; olive oil, eight ounces; tar, two ounces.

3. Camphor dissolved in sweet oil, adding one-eighth part of glycerine oil to the mixture is as good a protection against flies as the tar and oil, and much more cleanly.

4. Essence oil verbena, one drachm; cologne spirits, not cologne water, ninety-five per cent., one pint; mix and agitate for twenty-four hours, then add distilled water four ounces, and filter. Bathe the face, neck and hands well,

5. Use carbolic acid soap.

Glue.—Glue is prepared for use by a gentle heat in a water bath; when thus prepared it may be kept in a liquid state by the addition of a fluid ounce of strong nitric acid for every pound of dry glue. Or take the dry glue and add three times as much commercial acid: this will dissolve the glue without the hot bath. The ordinary "prepared glue" which is kept in an imputrescible liquid state, is composed of six parts glue, sixteen parts water, one part hydrochloric acid, and one-half part of sulphate of zinc.

THE ART OF FLY-MAKING.

BY THADDEUS NORRIS, ESQ.

If the learner's fingers are delicate and he has good use of them, it is better to dispense with some of the mechanical appliances used; but for one whose digits are clumsy or who lacks a free use of them, I would recommend a vise for holding the hook, and a

spring plier, or as some term it a pair of pliers, for holding the end of a thread or hackle, and conveniently used for wrapping the latter on the hook. As to the materials, I will enumerate nearly all that I use myself, and in the order in which they are applied to the hooks.

Wrapping Silk.—The finer, if strong, the better; and although the color should in some degree correspond to the other material used, this is not of much consequence, as it is only seen in the few slight wrappings at the head of the fly.

Wax.—Do not use "cobbler's" wax. Take one ounce of the clearest and lightest rosin you can procure, one drachm of gutta percha, and one teaspoonful of linseed oil—the crude, not the boiled—put them in a teacup (I use the lower part of a discarded tin blacking box), heat them, stirring with a little stick the meanwhile to have them thoroughly amalgamated, and then pour the hot compound into a bowl of cold water. As soon as it has cooled sufficiently, work and pull it, much as girls pull "taffy;" this makes it light colored and tough. If the gutta percha cannot be easily obtained it may be omitted, but it adds to the toughness. To make the wax softer for cold weather, add a few drops of oil. To make it harder for warm weather, add, as you require, a little more rosin.

Hooks.—There is much difference of opinion as to their proper shape for flies. Conroy declares for the O'Shaughnessy; *i. e.*, the improved Limerick. I coincide with Conroy. The point of the barb of the O'Shaughnessy has an outward projection. It is what is called a hollow point, and the chances of hooking the fish are thereby increased. The Kirby, the hooking quality of which is superior to all others, if short shanked, may be used for palmers and hackles, but for winged flies the sideward inclination of the point would give the wings of the fly "a list" to one side, and prevent its floating on an "even keel."

Gut—Should be fine for stretcher, and stout for drop flies; for the latter using a half length. If the droppers are intended to be looped to the leader, the loops should be tied in each end of the length after soaking the gut, the projecting end pulled tight and cut off close, and then the length divided into two. For my own use, and for my customers, I prefer gut dyed a neutral tint, which

is between a blue and lead color. It is done as follows :—Throw your hank of gut into a basin of cold water, and while it is soaking put into a small vessel—tin will answer—a pint and a half of water with one drachm of ground logwood and six grains of copperas. After it has commenced boiling let it bubble for ten minutes longer ; then, dashing the water from the gut, throw it in and press it down with a small stick. In thirty seconds or so lift it to see the depth of tint, and continue to examine and immerse it until it suits your fancy. A light tint I consider preferable. Some persons think that the dye affects the strength of the gut. This is not the case, unless there is too much copperas ; much more than I have prescribed.

Tinsel.—Gold or silver, as it is called, but really "Dutch metal," whether round or flat, is kept by variety or military stores, or the country reader can obtain the flat from some dealer in Irish linens, as it is frequently used, ornamentally in putting them up.

Dubbing.—The materials, and they are many, of which the bodies of flies are wrapped are, first, and most important, peacock herl, or "harl," as some persons call it—the little plumelets or fibres growing on each side of the tail feathers of the peacock. The copper colored for nine flies out of ten is preferable ; the green is used for fancy flies. The next is mohair, or the ravellings of a fabric called "moreen," or pig's wool, growing on certain parts of the animal beneath the bristles, or seal's wool, the most brilliant of all —all of which can be dyed of many colors ; or the fur of a rabbit, squirrel, monkey, or other animal. Add to these wrapping floss silk, and the list, I believe, is complete.

Hackles.—The hackle is intended to represent the legs of a winged fly, or without the wings some imaginary caterpillar insect, which trout take for a reality. There are saddle and neck hackles. The former are the long streamers growing on each side of a cock's rump, the latter are plucked from the back of the neck—the closer to the head the shorter the hackles and stiffer the fibres. Having stouter stems than the saddle hackles, they are less apt to break in winding on. The older the cock the stiffer the fibres ; but as old cocks are not always obtainable, I avail myself of the good terms I am on with several poultry dealers to pluck the heads and necks of their capons. Natural hackles are more generally

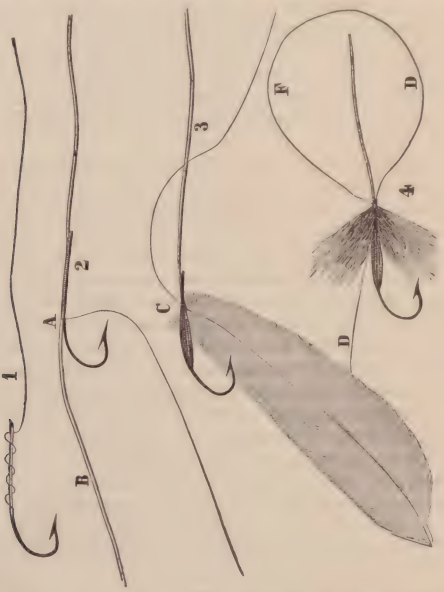
used in tying trout flies than others. Then there are those, the fibres of which are red at the stem, or say at the roots, and black on the outer edges of the feather, and frequently black at the stem and red at the outer edges; both of which are called furnace hackles. There are also light yellowish red, termed "ginger hackles." Black hackles are essential in tying dark flies. Grey are used in tying dun colored flies when dun hackles, which are very scarce, are not to be had. Add to these the ginger barred and black barred on a white ground, and we have most of the natural or undyed colors. But hold, there are a few more, the feathers from the wren's tail, from the ruff of the grouse, from the partridge and snipe, and the short spotted feathers of the guinea fowl are occasionally used, but they are soft of fibre and poor substitutes for cocks' hackles.

Wings.—The feathers of which the wings of flies are made, are numerous. Those of the mallard, teal, red-neck, sheldrake, wood-duck, and other wild fowl correspond in position to the saddle hackles of the cock, and are, I think, what ornithologists term "tail coverts." Few others, except the secondary wing feathers of the red-neck, canvas-back and teal, are used. The tail coverts of ducks are difficult of manipulation on account of their extreme delicacy and lightness. Of all feathers from the wings of birds or domestic fowls the secondary only are good; the pinions are worthless. If a man's arms were wings the pinions would be found growing from the wrist to the tips of the feathers, the secondaries from the elbow to the wrist. I hope this will explain their true position, for if one asks his friend in the "rural districts" to get him the feathers of a certain fowl, in nine cases out of ten he will be presented with any other than the right ones. The great variety of plumage in domestic fowls, produced by crossing and interbreeding, has furnished some feathers invaluable to the fly-maker, especially to the beginner; these are in nearly every case the secondaries of hens. They are much easier of manipulation than the tail coverts of wild ducks or the short fibred wing feathers of birds, and in all cases should be used instead by the tyro when he can get them near the shade or markings of any duck's feathers he may admire. The Earl Derby, the dark brahmas, and most of the various crossings producing so many shades

of brown and mixed colors furnish them. White secondaries are used for the wings of the moth fly or white miller, as also for the coachman. Dun feathers are almost as difficult to procure as dun hackles. When one is fortunate enough, therefore, to obtain them in excess of his own wants he should garner them up for the needy; for fly-makers are great beggars. Red ibis of course will be seized on, as well as the crest, ruff, back and breast feathers of the golden pheasant. Turkey, the secondary and tertiary, as well as the tail feathers, also come into play; so also do some of the wing feathers of the wild goose. English blue jay, guinea fowl, macaw and parrot, and golden pheasant are used almost entirely in tying salmon flies.

Let me imagine, my reader, that you have taken a seat by my side at the table where I tie my flies. Before us are two paper boxes, each about sixteen inches long, four deep, and five wide. On removing the top the sides towards us fall by little muslin hinges, on the table. The boxes are divided by little pasteboard uprights, each into five apartments of equal width. In the first apartment of the box on our left, are bits of feather used for the tails of flies, viz., the tail coverts of the mallard, teal, sheldrake, and wood-duck; feathers from the crest, ruff, back, and breast of the golden pheasant; red ibis, parrot, macaw, and a few dyed feathers. The second, third, and fourth apartments are for the feathers for wings, described in my *first cast*, and the fifth contains my hackles. These feathers are neatly folded in slips of paper and placed in large sized envelopes, which have the names written at the top of the back. They sit edgewise in the box, with the inscriptions all facing the same way, so that by passing my fingers over them, I can easily find the feathers I am about to use. The box to my right contains, each in its proper apartment, hooks in little boxes, the size marked on top and bottom, hand vise, spring pliers, picker, wax, a pair of sharp scissors, three and a quarter inches long, with blades an inch long and one-quarter inch wide, a small flat piece of India rubber for straightening gut, wrapping silk of various colors and degrees of fineness, floss silk, peacock and ostrich herl, and the different kinds of dubbing as enumerated previously. I do not imply by the foregoing that so methodical an arrangement is necessary for an amateur, but something of the kind would prevent confusion.

Suppose first, we tie the simplest hackle, say a ginger on a No. 6 hook. If you use the vise, fasten the hook between the jaws, then take a piece of wrapping silk of the required length, say a foot or fourteen inches, and rolling a mite of wax as large as a BB shot between the fore-finger and thumb, draw the silk through



twice. With the hook in the position shown on the annexed illustration, whether held by vise or between the thumb and fore-finger of the left hand, take five or six turns around the shank of the hook, as shown in figure 1. Then, laying on the gut, commence quite close to the head and wrap down to A, figure 2. Here, with three turns of your wrapping silk, fasten in the floss, A B,

and laying the wrapping silk along the shank, tuck it in between the gut and the head of the hook, and throw a few loose coils around the gut to keep it out of the way. Now wind on your floss as far as C, figure 3, increasing the bulk of the body somewhat as you proceed; then throw the loose coils of wrapping silk free from the gut, and take three turns over the floss and clip off the end. You next take your ginger hackle, about the length figured, and stroking back a few fibres at the point and clipping off the end, lay it against the hook and fasten in with four or five turns and wrapping up to within a sixteenth of an inch or so of the head, throw a few loose coils around the gut as before. Now wrap on your hackle closely, pressing back the fibres as you go to avoid overlapping them. On getting as near the head of the hook as shown in the illustration, fasten the hackle with two or three turns, clip off the ends and throwing the wrapping into coil D F D, seize it at F and take as many turns as will come to the very end of the shank. Now reversing the turns, with the gut through the coil, you draw on the end D until the wrapping forming the coil is drawn tight. Your fly now, after clipping off the surplus, is complete, needing only a touch of copal varnish, with a small camel's hair brush, at the head to make it secure.

"Let me tell you, scholar," as Father Izaac so frequently remarked to his pupil Venator, the tying of this simple hackle is the all-important rudiment of the art. If you learn to make it neatly all else will become "just as natural as falling off a log." But let us tie another hackle and beautify the lower part of the body with a little tinsel. So we go back to figure 2 and suppose A B a strip of flat gold tinsel which we have fastened with three turns of the wrapping and thrown the latter in a few loose coils around the gut. We take three turns of the tinsel, perhaps four, or even five if the hook is large, down the shank closely, so as to hide the hook, and then as many turns back, and after fastening with two or three turns of the wrapping cut off the end of the tinsel. We will vary the body of this hackle by having it of peacock's herl. We accordingly take four or five herls between the thumb and finger of the left hand and clipping them off evenly, lay them on where you have just clipped off the tinsel, and take two or three turns over the ends which project toward the head of the hook. Now laying

your wrapping silk along the herls you twist both herls and wrapping silk slightly, winding in the meanwhile as far up the shank of the hook as you intend the body to extend, then fastening in your hackle you proceed as already described.

Fur, mohair, pig's wool and seal's wool are spun on in the same way. A ravelling of any fabric, for instance, moreen, may be fastened and wound on as floss silk. In making a very large body to a fly it is a matter of economy when using floss silk, to wrap first with darning cotton, or similar material. It matters but little as to the color, as the floss covers it.

To make a palmer hackle proceed as instructed as far as A, figure 2; and after putting on the tinsel, if it is required, fasten in the tip end of the hackle, then the material of which the body is composed. Now you have tinsel, hackle, and dubbing tied in, and the rule is that the material fastened in last is wound on first, so you wind on your dubbing, fasten it a little below the head of the hook, and then taking three, four or five turns of the tinsel in the same direction, you fasten it also. Now you wind on your hackle just behind and close to the tinsel, and as you get near the head of the hook disregard the tinsel and take a few close turns of the hackle, fastening it, clipping it off and finishing as already directed. In a palmer the fibres of the hackle should stand out much thicker at the shoulders and head of the fly than along the body.

I hope the reader will understand the directions I have given for tying hackles and palmers, for they are pertinent, as far as they go, to making winged flies.

The most celebrated fly makers use only their fingers, but a small hand, or as some call it a pin vise, is exceedingly convenient when one wishes to lay down his work for a while. By twirling it with the left hand and holding the material with the right you can wind on the most delicate floss without soiling it with wax, which it is almost impossible to have your fingers entirely free from. In fact it is necessary sometimes to dissolve whatever of it adheres to the fingers with a little oil and then wash your hands with soap and water to get rid of the oil.

A certain school of fly-makers tie on the wings, or more properly the wing, last of all, and in making an elaborate fly it is the proper way, but in ordinary trout flies, as I shall presently show,

the wing should be put on immediately after wrapping on the gut. Some old-fashioned makers maintain that a *pair of wings* should be put on, each one separately. This is certainly unnecessary, for most of the natural flies we observe on the water, if alive, have their wings folded together, appearing as one. Especially is this the case with the Ephemeridæ, which are most numerous.

Let me ask the reader to cast his eye on the plate above. He will observe that the fibres incline towards the top end of the feather. Now each of these, on the sides where they come in contact, if examined with a microscope, will be found to contain a regular series of little hooks, if I may so call them, forming a con-

nection or interlocking with a similar series on the adjoining fibre. On this interlocking of the fibres, with the arrangement of the feathers, and the oiling which the bird gives them, depends its ability to shed water as from the roof of a house, and a duck to swim and dive and still remain dry. If you cut out a section (figure 2), and, doubling it, form figure 3, the fibres at the outer end of your wing will be of an unequal length and require pinching or clipping off of the ends after it is tied on. You will therefore, holding the stem of the feather in your left hand, stroke back the fibres gently and gradually, forcing the little hooks to lose the original connection with their fellows on the adjoining fibres and form others until you get them to stand out at right angles with the stem. After forcing as many back as will form your wing, clip them off with your scissors and double them with the under side of the feather inward, your *one* wing, representing *a pair of wings*, is ready to tie on.

Holding the smoothly folded mass of fibres together between the thumb and fore-finger of your right hand, lay it on the back of the hook, the ends of the fibres extending as far back as you propose to have the length of the wing, pressing it down firmly; then bring the fore-finger and thumb of your left hand into action, and releasing the hold with your right take two or three turns of your wrapping silk; look to see if it sits right, and then with one or two more wrappings, close and neat, you fasten off with the invisible knot, as described in finishing a hackle; and so your fly is complete.

The foregoing is the English mode; but let me describe another, and, I think, more secure way of putting on the wings of trout flies. I think it originated in Ireland. It is now generally adopted in this country. Holding the hook as already described, take four or five turns of the wrapping silk, about two-thirds of the way up from the bend to the head, then laying on the gut continue wrapping, but closely, leaving just enough of the hook to fasten and finish off; lay on the wing, the convex edge beneath, and the end in the reverse direction, *i. e.* outward along the bare gut, then, holding the wing firmly in position, take two or three turns of the wrapping, being careful that the wing does not turn over towards the opposite side of the hook, look at it to see that it

sits properly; continue down the shank with a half dozen or more turns, and then clip off the root ends of the fibres, which of course are pointing towards the bend of the hook. Your wing is now secure, with the point or end reversed. Continue wrapping over gut and hook until you come opposite the point of the latter; then put on your tinsel, clipping off the surplus end, then your dubbing, extending it well up towards the head, and leaving the space to be occupied by the hackle about half as much as that so occupied when tying a fly without wings. Here you fasten in the hackle firmly, winding it on up to the point where you commenced tying on the wing; secure the end of the hackle with three turns of your wrapping, clipping off the surplus end, then double back the wing into its intended position, take two or three turns over the head or but end, and finish off with the invisible knot, as previously described.

A quicker way of putting on the wings is, after stroking back the fibres, and bringing them at right angles to the stem of the feather, to double them into the shape of the wing, and then, with a quick jerk, pluck it by the roots from the stem. The wing is then laid on, and the fly proceeded with as just described. The wing should extend backward just so far that the tip of it comes immediately over the bend of the hook. The fibres of the hackle should hardly be long enough to reach the same place, and the hackle itself should not be more than two-thirds the length of stem required for a hackle or palmer fly.

One would suppose, before he tried it, that the wing cut or torn from the stem, as described, would be square at the tip end when tied on. A trial will prove that the end will be oval or elliptical, resembling the wings of a natural fly. The learner, of course, will find that in tying back the wing, if the turns of the wrapping silk are too near the but end of the head, the wing will sit too perpendicularly, and that if the turns of the wrapping are too far back it will sit too close to the body. The body in a well proportioned fly extends rather beyond, opposite the point of the hook. If the wing is too long it should be shortened by a vigorous pinch of the thumb nail and fore-finger.

I had forgotten to mention that in making a body of mohair, fur, or pig's wool, the requisite quantity, after a little pulling, is placed

in the palm of the left hand and rolled into the shape of an oblong cone. The smaller end is then applied to the lower end of the body, and twisting or spinning it in with the wrapping silk it is wound up the body, which is to be increased in bulk as you near the space intended for the hackle. The wild hairs of the dubbing should be clipped off, so also should awry fibres of the hackle after winding on. The picker (a darning needle, stuck head in into a small cork will answer for this little implement), when required, is brought into requisition in arranging and straightening the irregular fibres after winding on the hackle.

The mode of clipping off the but ends of the wing as close up to the head of the fly as I have described, answers in most cases, for instance for a heri, or mohair, or fur body, but when we intend to make a floss body the surplus part of the wing should be clipped off in a direction slanting towards the bend of the hook; so that in wrapping over it with the floss the body will taper, handsomely increasing in bulk as it nears the place where you intend to fasten in the hackle. In tying flies one becomes appreciative of the minuteness of spaces, and in putting on tinsel, or in the length of the body, or in finishing off at the head as much as may be occupied by one or two turns of the finest wrapping silk, is easily judged of.

Tails.—In putting on this little "caudal appendage," as Mr. Sparrowgrass would have termed it, much nicety is to be observed. Of course it is placed precisely on top of the hook, the fibres of feathers of which it is composed should curve upward and sit gracefully. If it be a plain body, as in the fly, called the hare's ear, it is tied in on completing the wrapping on of the gut. If tinsel ornaments the end of the body, it should be put on first, and then the tail. If the body is intended to be wrapped with tinsel, it should hang loose while putting on the tail and then wound spirally over the dubbing with two, three, four, or five turns, as the case may be.

Repeating in part the directions already given for the bodies of the flies, let me remind the learner that the material fastened in last is wrapped on first. Suppose for instance you wish to make a winged fly with a palmer body: After the tail is on, tie in the end of the hackle, and then—*firstly*, wrap on the dubbing; *secondly*, the tinsel; *thirdly*, the hackle, following close behind the turns of the

tinsel; and it makes a better looking fly to wrap the hackle much more closely on getting up under the wings; making it a little more "buz" as it is frequently termed. A fly is said to be buz when the hackle is wrapped on thick and it looks "bushy" as we Americans would term it.

Some makers use two or three half-hitches in finishing off at the head. The invisible knot is as easily tied and much more secure.

Let me describe as briefly and as plainly as I can the proper mode of using a pair of scissors. They should be such as I have described. Do not put your finger and thumb into the bows or oval openings, but lay that part of the implement in the palm of your hand and with the thumb and fingers work the blades. A little practice in this way will enable one to pick out and clip off a single fibre of the hackle or wing with great nicety.

I now introduce a plate of four salmon flies, (three of them copied from Blacker's "Book of the Salmon,") in order to show what are "feelers," and "toppings," and "loops," and "heads and shoulders," and "tags" and so on. We scarcely ever use a more elaborate salmon fly than the second, for the waters of the Dominion, and a Shannon fly or one of Whitney's flies tied for the Maine waters, the "Toodlebug," for instance, or one of my own mixed wings made for the same waters, unless the river was very high, would scare all the Nipisiquit or Cascapediac or Restigouche salmon out of a pool. A knowledge of the technical names of the minor appurtenances of a salmon fly is not essential to one who plies his seventeen foot withe, or scarcely to one who makes his own flies for American rivers, but to be thorough we must name all the little adjuncts and accessories.

I will therefore call the reader's close attention to the third figure. The tail is what is usually called a "topping," *i. e.* feather from the crest of the golden pheasant. The body is wrapped with floss silk, ribbed with gold twist, *i. e.* stout gold thread, which is followed by a hackle almost to the head where, as will be observed, another feather is tied on, a blue jay, for what is termed a "shoulder." There is a mixed wing of golden pheasant neck, teal, guinea hen, and light brown turkey, with a topping much longer than the tail surmounting the wing. The head is of black ostrich herl,

wound on closely, both for ornament and to hide the but end of the wing where it is clipped off. Referring to the fourth figure, a

"tag" just at the but of the tail. A tag may be of ostrich herl, or pig's or seal's wool, or floss. The "feelers" which by a great stretch of imagination are supposed to represent the antennæ of a

natural fly—are the two long fibres of macaw tail feather tied in on each side of the head and extending back over the wings; and another stretch of imagination is to suppose that a natural fly carries them thus. The third or fourth fly figured is much too large for the rivers of Canada at an ordinary stage of water. The third might do on very high water after it has gone down just enough for the fish to commence noticing a fly.

The second figure is a very plain fly, the "blue and brown," or "Nicholson," named after an old salmon fisher, "a broth of a boy," of St. Johns, New Brunswick. There are a few turns of flat gold tinsel, or gold twist, then a tail of mallard and golden pheasant's ruff; the body of reddish brown seal's or pig's wool, wrapped with a blue and reddish brown hackle; the wings are of mallard, and, according to Mr. Nicholson's style of tying, stand well up. The size of the hook given is for high water, when the dubbing and hackles are of lighter shades. As the water falls the hackles and dubbing should be darker. On low water and bright weather dark brown and purplish blue are best; the hook decreasing in size as the water falls. In fact, trout hooks numbers 3 and 4 (Conroy's O'Shaughnessy's numbers) are as a general rule large enough for the rivers of Canada; numbers 1 and 2 are full size for high water.

One who has become somewhat proficient in tying trout flies, can easily make one for salmon. But at the risk of repeating to some extent the directions given for the former, let me describe the tying of a plain salmon fly, and leave the ambitious amateur to his own ingenuity in making an elaborate one. The blue and brown, as described, has two hackles, one of each color. We will take a fly with one: say the fiery brown.

Lay all the materials before you—a short topping for tail, a bit of gold twist (three inches or so), fiery brown dubbing of mohair, or pig's or seal's wool, a hackle of redder shade than the dubbing, the wing ready folded, a plumelet of ostrich herl, a bit of blue and yellow macaw tail feather, and a gut loop. The latter is so cut that when doubled it will be long enough to come about where the tail is tied on, the ends to be beveled, and, bending it over a coarse needle or an awl, an eye should be formed, as is not represented in the illustration. The wings of a salmon fly, as a general rule, should be double, or say two-ply, for mallard, of which most wings are

made, is very light, and requires delicate handling. In preparing it, stroke back the fibres gently and firmly until all their ends are square, clip off with your scissors, and lay it on the table; prepare another in the same way, and lay it on top of the first, placing it where it is not apt to be disturbed.

Now, if allowed, we will use the small vise figured in our first paper. *Firstly*—Secure the hook well between its jaws. *Secondly*—Wax your silk, and commencing near the bend, wrap up to the head with a dozen or so turns. *Thirdly*—Lay on the gut loop warp down opposite the bend, perhaps a few turns below. *Fourthly*—Lay on the gold twist, secure the end and winding it three or four turns back, opposite the point of the hook, fasten it, allowing the surplus to stand outward towards the head. *Fifthly*—Put on the topping for tail so that it curves handsomely upward and secure it with two turns of the wrapping silk. *Sixthly*—Fasten in the tip end of the hackle, the back uppermost. *Seventhly*—Having pulled and picked your dubbing and rolled it in the palm of your hand into a conical shape, (very little is required,) twist in the small end with your wrapping silk, and spinning both silk and dubbing almost up to the head, fasten it with a half-hitch. *Eighthly*—Twirling your vise, follow with four turns of the gold twist, fasten and then follow close behind with the hackle, the underside next to the dubbing. You are now ready to put on the wing. There are two ways—one is, after doubling it to tie it on as described; another (as taught me by Mr. Harry Venning,) is not to double but to lay it flat on the top of the hook with the fore-finger and thumb of the right and compress it with the corresponding fingers of the left hand; bending the two edges of the wing so that an equal proportion will enfold the hook on both sides. Now with your wrapping silk take two turns; look to see that the wing is put on evenly and sits properly, and taking a half-dozen more turns, make it secure with a half-hitch. Putting on the feelers to have them sit uniformly is a nice job. The pair should be taken from opposite sides of the blue and yellow macaw tail-feather; that on the far side to be fastened in with two turns of the wrapping, then that on the near side. In making the head observe that the black ostrich herl has a convex and a concave side, and is to be wrapped on very closely with the convex side outward towards the eye of the loop. Clip off the sur-

plus but-end of the herl and fasten with the invisible knot. With a small sharp stick dipped into copal, varnish the last wrapping of the silk, being careful not to let it touch the herl.

When mallard is scarce the under ply of the wing may be of turkey, making it more solid than if it was all mallard. As a rule salmon flies are wrapped palmer fashion, that is, the hackle over the whole length of the body. The bodies, as will be observed, are very slender in proportion to the size of the fly.

ARTIFICIAL FLIES.

Constant inquiries are made for works on Angling. Such works (exclusively as such), have never been published in America. Proficient anglers well know how difficult it is to utter opinions and instructions which the fraternity will unanimously accept as *ex cathedra*, and are ever chary of the captious criticisms of those who keep silent and assume to be the only Solons. To prepare a work upon patterns for flies, and to determine precisely what flies are suitable for different waters, at the same or at different seasons, is even more difficult still. There are a number of excellent English books of this character, but they are of little service on this side of the Atlantic, because the water and the larvæ that inhabit the waters there are widely different from ours. The same flies that obtain in England will not serve us here, where they are not known either to entomologists, or to the fishes themselves. To write intelligently on this subject, one has to begin at the egg. Nothing but a correct knowledge of the insects that inhabit the waters, or places contiguous, will enable the student to make an intelligent selection of subjects for artificial flies for specified times and places. To enable us to impart this information correctly and properly, we have taken by permission the following article from the columns of *Forest and Stream*. It was prepared by Miss Sara J. McBride, of Mumford, N. Y., and constitutes a valuable contribution to the angling literature of America.

"Insects are the scavengers of nature. They seek fetid, unwholesome matter, the germ cells are left, and the corrupt mass is the birth place, home and sepulchre of myriads of animate life. Noxious miasmatic gases are consumed, purity takes the place of

foulness, and the whole, cleaned at the appointed time, has the appearance of a miniature resurrection. Not only is the earth cleansed, but the water is purified. The flora that spread out their arms expands and grows in rich luxuriance beneath the water without fear of drought or a sigh for rain, all kept clean and pure by the infinite hosts of species that sport in the water, whose nourishment is decaying vegetation and disagreeable substances formed by the decomposing action of the water. The majority of aquatic species, and those species that appear in the greatest numbers are these indirect vegetarians. I am aware that this is a strong statement, and one never before advanced. It is the result of years of patient watching and studying. Of the class of insects whose larvæ feed in this manner there are, in the section *Neuroptera*, the *Ephemera*, all of the *Phryganina* that live in cases, several species of lialina. Many species, but divided among different families in the section diptera. One of these, *Pisces simuliner*, received its fishy name in honor of the commotion it created among pisciculturists, a few years since. It figured in Fish Commissioners' reports, etc., as a "web worm" and "destroyer of young trout." Larvæ are ravenous feeders. A stream must be rich in confervæ to have a large insect fauna. It would be well sometimes before stocking streams with fish to stock them first with insect food. Not that insects are the only fish food, but directly and indirectly they form the main supply at all seasons, and almost the exclusive food when the *Gammarus* and other crustacea are passing through the first stages of life. Insects are liable to be exterminated in streams, or new species take the place of the old ones; floods and freshets sweep the flora away. Mineral matter is obnoxious; or their parasites and enemies may gain the ascendancy. New species may supplant the old inhabitants, not always "the survival of the fittest," but the survival of those whose enemies and parasites are held in check from a combination of circumstances.

"In an insect's life there are three familiar forms, larvæ, pupa, and imago. Larvæ are frequently used as bait, pushed squirming, wriggling, protesting on the bare hook. Of these so martyred, there are *Phryganidæ* larvæ barbarously drawn from their castles, known as caddis bait to the destroyer, grubs, larvæ of beetles, maggots, or gintles, larvæ of the diptera, caterpillars, larvæ of moths. The only pupa so sacrificed belongs to the family of Lialis, known by the suggestive appellation of helgramite. Of the adult insects or imagines, the *Locustariæ*, or grasshoppers, are a common bait. The imitations used are of four forms. The fly proper, with clear, smooth body, feet, wings with or without caudal setæ. Palmers, body covered with hairs bristling in all directions from one extremity to the other. The hackled fly, body like the palmer with wings, and sometimes caudal setæ. The hackle, body

smooth with hackle closely wound at the head, the upper part of the hackle representing the wings, the lower the feet. This is what the old authors call a "fly-made buzz," a fly with its wings in rapid motion. It imitates some small flies with heavy drooping wings as they flutter over the surface of the water.

"In imitating insects the size of the fly must correspond with the size of the insect, that the fly, when made, will be of the same size as the insect imitated. All nondescript flies should be of the same size as the natural inhabitants of that particular stream they are thrown on.

"It is a strange but peculiar fact in insect economy, that the small streams have a small sized insect fauna and the larger streams a correspondingly larger. They are not the same identical insects, but sometimes closely allied species. I will here state for the benefit of the uninitiated in bug lore, that insects, when they have assumed the perfect or winged form, no matter how long the term of life is afterward, never change, never grow.

"The waters of the United States and Canadas, homes of the *Salmonidæ* family, may be classed in three or more general divisions, each with its own well-defined insect fauna. The first of these we will consider are Head Springs. In these the water is of a uniform temperature; their even flow the least disturbed from rains, snow water, and freshets; the birthplace of the trout, and the richest in insect life. The water is at all times swarming with animalculæ, the wonderful reproduction of these diminutive orders supplying food for the larger, and they in turn for the fish. Insects leave these waters about a month earlier than they do other streams. The first that present themselves are of the family *Chironomidæ*, belonging to the order *Diptera*. The chief distinguishing characteristic of this order is their having but two wings—all other orders have four. The larvæ are long, slim, worm-like, some a blood red color. They are aquatic, or rather they live in that soft mixture of mud and water, with its slimy growth of vegetation offering a treacherous foothold to the investigator, where sinking lower and lower they feel as if they would soon be exploring that region no one wishes to know of. When ready to change to pupæ, they bury themselves deeper in the mud. The outer skin hardens, and to all appearance, they are at rest, but really preparing for a most wonderful metamorphose. From its changes the body contracts in its case, leaving a sort of vacuum, so that when it finally wriggles itself out of the mud into the water it floats to the surface. The case slits open above the thorax and the fly comes out. Of these there are five that appear in such quantities that they may be preëminently distinguished as fish food. They are piscatorially named black, dark claret, bright claret, grey, and olive gnats. These insects are double brooded, that is, the cycle of their life is repeated twice every year. Their first exodus, if the weather is

favorable, is from the last of March to the first of May. Their second, through August and September. They may be farther distinguished as morning flies, as the majority leave the water during the hours of seven and eleven A. M.

"Another genus, immense in numbers, but small in size, that metamorphose at this season, belongs to the family *Ephemeridæ*, order *Neuroptera*. The pupa is active and closely resembles the larvæ. They are brisk, rapid swimmers, live an independent, unsocial life, keeping close to the bottom of the creek, where their murky muddy color protects them from the vigilant eyes of their pursuers. When disturbed they unhesitatingly risk an open flight, first up to the surface, skim along a little way and then down again. These are their tactics on the defensive. It will be almost needless to write that these are favorite game for trout, and where one is you are sure to find the other. It is impossible to rear them in aquaria. If the water becomes a degree or two warmer than that in the bed of the creek, both larvæ and pupæ perish almost instantly. When ready to take wing they rise to the surface under some protecting shade, avoiding the uneven temperature of the banks. With a heaving motion of the body the thorax slits open, two upright wings flash out and are held aloof until the feet and setæ are drawn out; for an instant it rests on its old coat, and then flies off a sub-imago to await its last metamorphose, which takes place in from ten to twenty-four hours after leaving the water. A delicate parchment-like coating is thrown off the entire body, head, feet wings and setæ, leaving the insect with paler colors—transparent wings and translucent body. The familiar nomenclature for this family is dark fox, poor man's fly, red fox and bright fox. These begin to make their appearance the middle of April. There are a succession of broods throughout the summer months. They leave the water in the evenings, some very early in the mornings. The black hackled fly has no natural history, only a history of long experience, a captivating fly for all streams. Its most wonderful exploits as a lure are when the water is discolored with rain. The ibis is probably taken for a flower or animalcule. Many forest trees have at this season a blossom whose petals are of this scarlet color. The palmers or caterpillars are to be used wherever fish are to be caught *ad libitum*. The grizzly king, queen of the water, and professor, have a classical history. The two first are the invention of Prof. John Wilson—Christopher North of the "*Noctes Ambrosianæ*." The last the invention of James Wilson, the eminent naturalist. They are general flies for all streams, and all seasons. Like the black hackled fly and ibis, these should be held in reserve for the days and hours where the six-footed race are lying in ambush.

"The dragon flies *(Odonata)*, take the front rank among water insects. In described species they exceed in number all the re-

maining families in the section *Neuroptera* whose birth-place is the water. The majority are in the warmer latitudes. They have a preference for the waters where the temperature increases during the summer months. In springs and mountain streams the larvæ will be found hugging the bank and in shallow inlets. They hibernate in the egg form, at least in the northern latitudes; are voracious predaceous feeders; are sporting characters, whose life at all times depends on their agility in pursuing and capturing game. Their large size, as well as their habits in flying in pursuit of food, keeping high over the water, will always prevent their imitations being used successfully as bait on small streams. They are rapid in their movements, but easily tire, and where there is a large expanse of water their imitations can be used with good success. In such waters there is always a larger sized class of fish, making strong, heavy tackle essential.

"The next family the section predominant in species, and each species predominant in numbers, is the *Phryganiina*—meaning a fagot. For various reasons this family should claim the particular attention of the fly-fisher. It belongs almost exclusively to the northern latitudes, and particularly to that class of waters where the trout and grayling delight to sport. From the numbers of species, and their diversity of habits, they make their appearance at all seasons. The imagines have a moth-like habitus, and are called "stone flies," on account of their colors resembling stones. The wings are black-brown, black shading through the browns, the brick colors, the luteous, until a creamy white is reached. The eggs are inclosed in gelatinous capsules which swell in the water and attach themselves to stones, sticks or vegetation. In this mass the young live for some time after being excluded from the egg. On leaving it they fasten around their body leaves, grass, or any soft substance forming a padding, and then at their leisure build a regular case around the whole, some spirally, others longitudinally, of pieces of wood, grass, roots or branches of plants, gravels, stones, shells, or any small and available substance found in the water, adding on as they increase in growth or stature. The appearance of these cases is as various as the species. Some take possession of hollow reeds or straws; others spin a case of silk exclusively. These cases protect the abdomen, but are so large that they can retreat entirely within when disturbed. They cling to them with hooks at the extremity of the abdomen. Learned in hydrostatics as they naturally should be, these cases are built with specific gravity, such that it does not discommode them as they walk, or buoy them to the surface. The few species in this family that are predaceous do not live in cases, but take shelter under stones and sticks, or spin a small web under some protection that they abandon at pleasure. When fully fed and ready to change to pupæ, they close their case with a grating, first fastening it securely to

some substance in the bed of the water. Those that do not live in cases make a pupa covering of decayed wood, or small stones. When this metamorphose is completed, and they are ready to leave the water, they make with their mandibles a semicircular incision in their covering, the head and the two first pair of feet are thrust out, the rest of the body is partly drawn and partly wriggled out. Now, as in the larvæ form, they swim by using their feet, and make their way with dexterity to the shore. In doing so I have seen them swim across the stream, a strong current tending to carry them down. In their struggles they would be part of the time on the surface and part of the time under the water. When they secure a landing place their appearance is somewhat peculiar. The mouth parts, or a portion of them, and the two first pair of feet are free, while the posterior feet and antennæ are pressed to the sternal surface, and over them the wings are folded, crossing at the points. In ten or fifteen minutes after leaving the water they cast off a thin parchment like covering, thus releasing all parts of the body. They leave the water just before twilight, but will be seen fluttering over the water at all hours. In the evening some fly in dense swarms over streams and ponds. Many are nocturnal, flying only at night. They leave the water in June, July, August, and September. A few species in the late fall; a few on warm days through the winter; and some in the early spring, but not in sufficient quantities to warrant their use as bait. The forms that have been imitated the most, are named familiarly: Stone, dark stone, grey stone, black June, general hooker, hod, wren fly, raven, kingdom, preceptor, and governor.

"The cow dung fly, (*Scatophago stercoraria*), so named on account of the larvæ feeding in the ordure of cows, belongs to the section *Diptera*. It hybernates as pupæ, buried in the earth. It bursts open the chrysalis and comes forth the first warm days of May. All the authors advise the use of this fly as bait on windy days, thinking it was the wind that brought it to the water. It might be, if the wind always blew towards each individual stream. It was, I know, a successful and popular bait for all streams, but why, it was for a long time a puzzle to me. I was at length so fortunate as to solve it. The females are short lived and seldom leave the vicinity of the food for the young; their imitations are seldom used as bait. The males live until they are chilled by the cold winds of the fall. They are greedy feeders, epicurean cannibals, feeding on their smaller sized cousins, fresh and juicy, catching them just as they are leaving the water. They hold them with their anterior feet, fly to the bank, and sitting under the shade of a leaf, suck the body dry. One evening I watched one of these flies supping on six simuliums; not being satisfied he made a trip to the water for another, but there was a trout in waiting and he sank to rise no more. The flies can be used success-

fully as bait at all hours. They have a double advantage, their colors approximating so closely to several species of *Phryganina* that they may be considered as representing three or four different insects.

"The black May is one of the favorite forms in the same section as the preceding. There are species having these colors at all hours and all seasons on the water. In some the ventral surface is clothed with a shaggy grey hair. These walk or glide over the surface of the water with remarkable rapidity, and have a decided dislike to leave it.

"The *Ephemerina* named for April will appear in May on mountain and tributary streams, on all the streams that remain open during the winter. They hybernate as active larvæ and pupæ, and if ice were formed, or partly formed, they would perish.

"In addition to this section, there is the great dun (*Baetis longicauda*), and its image, the red spinner. The latter in form and color approximates so closely to several different species that it has been used successfully throughout the summer. The yellow May (*Clæon striata*), appears usually about the middle of May and continues through June.

"To continue the list of general summer flies, forms that have made for themselves a name and history, but without prototypes in nature, there is coachman, king of the water, gold spinner, captain, soldier, kingdom, and the black, brown, red, and grey palmers."

Suitable Trout Flies for April.

Black Gnat, or Midge, No. 13.—Body and feet, black; wings subhyaline.

Dark Claret Gnat, No. 13.—Body, dark claret; feet, black; wings, subhyaline.

Bright Claret Gnat, No. 13.—Body, bright claret, mixed with red fox face; feet ginger; wings of one sex, hyaline, the other, ocherous.

Grey Gnat, No. 13.—Body, dark fox, mixed with dark claret; feet, grey; wings, hyaline.

Dark Fox, No. 10 or 11.—Body and feet, dark fox, mixed with lemon colored mohair; wings, subhyaline; tail, three fibres of dark grey hackle.

Poor Man's Fly, Nos. 9 and 10.—Body and feet, hare's ear and yellow mixed; wings, slightly mottled grey; tail the mottle of the wood duck.

Olive Gnat, No. 13.—Body, dark olive, mixed with bright claret; feet, ginger; wings, hyaline.

Red Fox, Nos. 10 and 11.—Body, fox cub face, mixed with yellow; feet, red (chicken red); wings, pale grey or subhyaline; tail, mottled feather wood duck.

Bright Fox, Nos. 10 and 11.—Body and feet, brightest part of the fox, mixed with yellow; wings, brightest hyaline; tail, pale yellow.

Black Hackled Fly, Nos. 6 and 8.—Body, orange, ribbed with gold tinsel; hackle black wings; tail, of the American partridge.

Trout Flies for May.

Black May, No. 10.—Body, black; feet, black; wings, greyish hyaline.

Cow Dung, Nos. 10 and 11.—Body and feet, brownish yellow; wings, yellow-grey.

Great Dun, Nos. 9 and 8. Body, purple brown; feet, grey brown; wings, dark grey hyaline; setæ, dark brown annulated with grey.

Red Spinner, Nos. 10 and 9. Body, bright claret, ribbed with gold tinsel; feet, brick color; wings, grey hyaline; setæ, pale brick color.

Yellow May, No. 10.—Body and feet, pale yellow; wings, pale yellow, mottled with brown; setæ, yellow.

Coachman.—Body, peacock herl; feet, dark red hackle; wings white.

King of the Water.—Same as queen of the water, with scarlet body instead of orange.

Gold Spinner.—Body, orange, ribbed with gold tinsel; feet, pale red hackle; wings, bright grey.

Captain.—Body, posterior half, peacock herl, anterior half, grey; white feet; red hackle; wings, grey; setæ, scarlet, green and wood duck feathers mixed.

Soldier.—Body, crimson; feet, red hackle; wings, grey.

Kingdom.—Body, white, ringed with green; feet, peacock herl, and red hackle; wings, grey, mottled with brown.

Black Palmer, *Brown Palmer*, *Red Palmer* and *Grey Palmer*, are made respectively of the different colored hackles that distinguish them.

Trout Flies for June.

Hawthorn, No. 11.—Body, shining black; feet and head, black; wings bright hyaline.

Shoemaker, No. 10.—Body, ringed alternately with light grey and salmon; feet, dark ginger; wings, the mottled grey of the mallard, and the mottled of the woodcock mixed; setæ, mottled woodcock.

Black June, No. 10.—Body, peacock's herl; feet and wings black.

Dark Stone, Nos. 8 and 9.—Body, dark brown; feet, yellow brown; wings, luteous.

Governor, No. 10.—Body, peacock's herl; feet, dark red hackle; wings made of the darkest part of the bittern's wing, or brown hen.

Green Drake, No. 7.—Body, white posterior, half ribbed with black, green-yellow mottled with brown; setæ, dark brown.

Brown Drake, No. 7.—Body, feet and wings, a golden yellow brown; setæ, dark brown.

Raven, No. 11.—Body, feet and wings, black.

Wren Fly, No. 9.—Body, clay-yellow; feet, made from the scapular feathers of the English wren or quail; wings and setæ, mottled widgeon.

Trout Flies for July.

Little Egg, No. 12.—Body and feet of orange and yellow, mohair and hare's ear mixed; wings, bright hyaline, slightly mottled; setæ, same as wings.

Lightning Bug, No 10.—Body of equal parts, of dark brown, and black mixed, tipped with yellow; feet, of feathers from the English grouse; wings, double, the inner wing black, the outer wing a yellow brown.

General Hooker, No. 9.—Body made of bright yellow and green, ringed alternately; feet, red hackle; wings, of the tail feathers of the ruffed grouse.

Little Claret, No. 11.—Body and feet, dark claret mohair, slightly tinged with blue; wings, of the bittern or brown hen; setæ, dark brown.

Claret Fly, No. 9.—Body, dark claret; feet, black; wings of the brown hen.

Fetid Green, No. 10.—Body, feet, and wings, a pale blue green.

Trout Flies for August and September.

Grey Coflin, Nos. 10 and 11.—Body, silver-grey mohair, tipped with orange silk; feet, light grey hackle wound over peacock's herl; wings and setæ, hyaline.

Brown Coflin, Nos. 10 and 11. Body, grey and bright claret mohair mixed; feet, dark grey hackle wound over peacock's herl; wings and setæ, grey hyaline.

The Gnats, named for April.

Quaker, Nos. 7 and 8; for evening and moonlight.—Body, grey wound with honey-yellow hackles; wings, made of feather from an oriole's wing.

White Moth, Nos. 6 and 7; for dark nights.—Body, feet and wings, pure white.

The *Stone Flies* continue on the water until the close of the season.

☞ At this season use the small flies for day fishing, and the large flies for evening and night.

General Flies, good at any time.

Ibis, No. 8.—A hackle fly, ribbed with silver tinsel; body, hackle, wings and tail, scarlet.

Peacock Palmer, No. 8.—Body, peacock herls; hackle black, and red mixed.

Grey Palmer, No. 8.—Body, peacock herl; dark grey hackle.

Professor, Nos. 8. and 9.—Body, bright yellow; feet, golden brown; wings, wood duck and mallard, dyed yellow, mixed; tail, scarlet ibis.

Queen of the Water, Nos. 8 and 9.—A hackled fly; body, orange, ribbed with gold tinsel; hackle, chicken red; wings, bright mottle of the mallard.

Grizzly King, Nos. 8 and 9.—A hackly fly; body, green; hackle, dark grey; tail, scarlet ibis; wings, mottled feather of the pin-tail.

Besides the above, the following are favorite flies.

Abbey, Golden pheasant and red tail, brown hackle, dark grey wing.

March Brown, Brown body, ribbed with yellow silk, brown hackle, turkey wing.

Brown Hen, Peacock body, brown hackle, wild turkey wing.

Silver Black, Black hackle, light black body, ribbed with silver tinsel, dark wing.

Oak, Orange body, ribbed with black silk, brown hackle, turkey wing.

Blue Mole, Dark grey body, grey hackle, slate-colored wing.

Silver Grey, Silver body, grey hackle, grey wing.

Orange Black, Orange body, black hackle, dark wing.

May, Yellow body, yellow hackle, yellow wing.

Red Ant, Brown body, brown hackle, light wing.

Montreal, Red body, red hackle, grey wing.

Blue Professor, Red tail, blue body, brown hackle, grey wing.

Cinnamon, Light brown body, brown hackle, brown wing.

Alder, Claret body, black hackle, slate-colored wing.

Blue Bottle, Blue body, black hackle, slate-colored wing.

Allerton, Body, yellow, ribbed with gold; hackle, blue and yellow; tail of wood duck feather.

Also the Blue Dun, Pale Green Dun, yellow spinner, jenny spinner, yellow sally, and, it is said, eight hundred patterns in all. The above will suffice for an assortment; the less used the better, in our opinion.

Other Baits.

Helgramite or Dobson.—What are known as Helgramites in the South and Dobsons in the North, are the fully grown larvæ and pupæ of several aquatic species in the family Sialina. Their feeding ground is chiefly in sluggish rivers. They are rare in mountain streams or head springs. They will be found in the shallow parts of the stream, under stones or submerged driftwood, or buried in the soft mud along its banks.

Fish Roe.—Tie a quantity, the bulk of a marble, in a bit of mosquito netting, or secure it to the hook with woolen threads. It can be preserved for a year in equal parts of salt and saltpetre. Cork tight in a bottle, and keep in a cool place. Fresh roe is the best.

Frogs.—Izaak Walton says: "Put your hook through the mouth, and out of his gills, and then with a fine needle and silk sew the upper part of his leg, with only one stitch, to the arming wire of the hook, and in so doing, use him as though you loved him."

To Scour Angle Worms.—Place them in sand, and they will clean themselves of earth, and become fresh and red. Raw beef is a good substitute, when worms cannot be got.

To keep dead Minnows Fresh.—Pack in wet saw-dust and salt or brine, adding a little saltpetre. Coarse straw dampened is also a good packing.

Live Minnows.—Have made a large bucket, holding say four gallons, with inside bucket small enough to have plenty of play and thoroughly perforated. Place a large piece of ice on top of the inside bucket every ten or fifteen minutes; churn the inside bucket up and down to aerate the water. If the inside bucket is oval on the bottom, it is much better than if it has a flat bottom, as the car or boat will keep the bucket in motion. In this bucket minnows have been transported two hundred miles.

To Keep Shrimp.—Put them clean and solid into a box or basket, the latter preferred, and place it on the ice in a refrigerator. We have tried covering with seaweed, mixing with sawdust, meal, etc., but for a handy home method nothing works better for keeping shrimp alive twenty four hours—a week in fact—than the ice chest. If you are going to carry them some distance before using, it is well to pack the box or basket in ice. If you are located near the water, the best way of all is to have a tight covered basket or a box, full of small holes, so as to allow a free circulation of water, and with the live shrimp therein, anchor it off shore. The Guilford Club, during the smelting season, have always adopted the latter method at Black Rock with perfect success, with the simple difference that the shrimp basket was secured inside a large floating lobster car, and they never were troubled with dead bait, but always found them alive and kicking when wanted.

Artificial Angle Worms.—A St. Louis firm has patented an imitation earthworm, made of India rubber or other flexible material, to be substituted for the live angle-worm. It exactly resembles the natural squirmer in color, and certainly possesses the advantages of cleanliness for use. It cannot be taken off the hook by nibbles, and needs no preparatory "scouring."

ADDITIONAL USEFUL HINTS.

The following information will be found to be of the utmost practical value, on occasion:

Weather Indications.—The color of the sky at particular times affords good guidance. Not only does a very rosy sunset presage good weather, and a ruddy sunrise bad weather, but there are other tints which speak with equal clearness and accuracy. A bright yellow sky in the evening indicates wind; a pale yellow, wet; a neutral grey color constitutes a favorable sign in the evening and an unfavorable one in the morning. The clouds are again full of meaning in themselves. If their forms are soft, undefined, and feathery, the weather will be fine; if their edges are hard, sharp and definite, it will be foul. Generally speaking, any deep, unusual hues betoken wind or rain; while the more quiet and delicate tints bespeak fair weather. These are simple maxims; and yet the British Board of Trade has thought fit to publish them for the use of seafaring men.

In Kentucky and elsewhere much reliance is placed upon the "goose bone." It has been handed down among the early traditions of the State, and may be called the Kentucky weather prophet. It is to be found in nearly every Kentucky country home, and in many parts of the State the farmers consult it, and prepare for handling their crops in accordance with its readings. The prophecy of the goose bone does not extend beyond the year in which the goose was hatched, and the prediction is for the three winter months only. Take the breast-bone of a last spring's goose and divide it into three equal parts, and the different divisions will represent December, January and February. The breast-bone of a goose is translucent, and if clear when held up to the light, the weather will be mild and pleasant; but if covered with cloud-like blots, it will be gloomy and cold; the heavier the blots, the colder will be the weather.

A Good Barometer.—Take a common glass pickle bottle, wide-mouthed; fill it within three inches of the top with water, then take a common Florence oil flask, removing the straw covering and cleansing the flask thoroughly, plunge the neck of the flask as far as it will go into the bottle, and the barometer is complete. In fine weather the water will rise in the neck of the flask even higher than the mouth of the pickle bottle, and in wet, windy weather, it will fall within an inch of the flask. Before a heavy gale of wind, the water has been seen to leave the flask altogether at least eight hours before the gale came to its height.

Swimming a Horse.—When swimming a horse never touch the bridle, as a horse is easily drowned when checked up or otherwise interfered with about the head. Sit well back and guide the horse with the hand, gently slapping him on either side as required thus a horse will swim a mile or more with a full-grown man on his back, and suffer but little. Or better still, throw yourself from the horse on the down stream side, and with the right hand grasping the mane at the withers, aid the progress of the horse with the other and feet as in swimming.

To Subdue a Horse.—Take a cord about the size of a common bed-cord, put it in the mouth of the horse like a bit, and tie it tightly on the animal's head, pass his left ear under the string, not painfully tight, but tight enough to keep the ear down and the cord in its place. This done, pat the horse gently on the side of the head and command him to follow. He will be found perfectly subdued and obedient, the more submissive if he has not been habitually treated cruelly or outrageously. This plan is practiced in Mexico and South America.

To Tell a Horse's Age.—The colt is born with twelve grinders; when four front teeth have made their appearance, the colt is twelve days old, and when the next four come forth, it is four weeks old. When the corner teeth appear, the colt is eight months old; when the latter have attained to the height of the front teeth, it is one year old. The two year old colt has the kernel (the substance in the middle of the tooth's crown) ground out in all the front teeth. In the third year the middle front teeth are being shifted, and when three years old these are substituted by the horse teeth. The next four teeth are shifted in the fourth year, and the corner teeth in the fifth. At six years the kernel is worn out of the lower middle front teeth, and the bridle teeth have not attained to their full growth. At seven years, a hook has been formed in the corner teeth of the upper jaw, the kernel of the next at the middle is worn out, and the bridle teeth begin to wear off. At eight years, the kernel is worn out of the lower front teeth, and begins to decrease in the middle upper front. In the ninth year the kernel has wholly disappeared from the upper middle front teeth; the hook on the corner has increased in size, and the bridle teeth lose their points. In the tenth year, the kernel is worn out of the teeth next to the middle front of the upper jaw, and in the eleventh year the kernel has entirely vanished from the corner teeth of the same jaw. At twelve years old, the crown of all the front teeth in the lower jaw has become triangular, and the bridle teeth are much worn down. As the horse advances in age the gums shrink away from the teeth, which consequently receive a long narrow appearance, and the kernels become darkish points. Grey increases in the forehead and over the eyes, and the chin assumes the form of an angle.

Shedding Mane.—The shedding of hair from a horse's mane and tail can be prevented by washing the parts affected a few times in carbolic soapsuds. Or a wash made of lard oil one pint and aqua ammonia one gill, well mixed and rubbed in, will prevent the falling of the hair.

Saddle Marks.—White marks caused by the friction of the saddle may sometimes be removed from a horse by applying, morning and night, an ointment made of lard and tincture of cantharides or Spanish fly, made in the proportion of a few drops of the latter to an ounce of the former.

Ticks on Horses.—Any kind of oil will make the tick let go of its own accord, if well rubbed into the hair of the animal. The theory is, that the oil fills the pores of the skin and deprives the tick of air to breathe.

Fleas and Vermin.—Nothing better to keep them off than Persian insect pow-

der (*pyrethrum roseum*) recommended by British *Medical Gazette* and for sale at druggists' and rat poison stores. A solution can also be made.

New Feed for Horses.—This is composed of two quarts of oats, one of bran, and half a pint of flax seed. The oats are first placed in the stable bucket, over which is placed the linseed; add boiling water, then the bran, covering the mixture with an old rug and allowing it thus to rest for five hours; then stir the mass well up. The bran absorbs while retaining the vapor, and the linseed binds the oats and bran together; a greater quantity of flax seed would make the preparation too oily and less relished. One feed per day is sufficient: it is easily digested, and is especially adapted to young animals.

To Extricate a Mired Animal.—The usual method is to fasten a rope around the animal's horns or neck, and while this is pulled by some of the assistants, others place rails beneath the body of the animal for the purpose of lifting it out of the hole. This plan is sometimes effective, but it often is not, and at best it is a slow, clumsy, and laborious method. The materials needed for the method here referred to are all that are required for a much better one. This is very simple, and two men can operate it, and at a pinch, even one man may succeed with it. A strong stake or an iron bar is driven into the solid ground at a distance of twenty-five feet or more from the mired animal. Two short rails, about nine feet long, are tied together near the ends, so that they can be spread apart in the form of a pair of shears, for hoisting. A long rope is fastened around the horns or neck of the animal, with such a knot that the loop cannot be drawn tight enough to do any injury. The rope is cast over the ends of the rails as they are set up upon the edge of the solid ground, and carried to the stake or crow-bar beyond. The end of the rope is fastened to a stout handspike, leaving about a foot of the end of it free. This end is laid against the bar or stake, and the other end is moved around it so that the rope is wound upon it, drawing it up and with it drawing the animal out of the mire. The rope being held up to the tied rails, tends to lift the animal and make its extrication very easy.—*American Agriculturist.*

Rawhide Straps and Halters.—Take the skin of cow, calf, colt, horse, or other animal, cut it into narrow strips, and shave off the hair with a sharp knife before the kitchen fire, or in your workshop on stormy days and evenings. You may make them soft by rubbing. A rawhide halter strap an inch wide will hold a horse better and last longer than an inch rope. It is stronger than hoop-iron and more durable, and may be used to hoop dry casks and boxes, and for hinges. Try it on a broken thill, or any wood work that has been split. Put it on wet and nail fast. Thin skins make the best to use it in its natural state. For other purposes it may be dressed.

Rawhide Lariat or Lasso.—Take a green bull hide, lay it flat on a smooth floor, cut off the legs and irregular pieces with a sharp knife until you bring it to an oblong or oval shape, then commence at the outer edge and cut a strip an inch wide or more, following the circular form until you have secured the required length, which should be fifty feet, then wind it on two posts, trees, or stakes, drawing it as tight as possible so as to stretch it. Then roll it foot by foot between two small boards to make it pliable, and then boil it in oil to keep it so, otherwise it will become very hard and dry when it gets wet. Then make a slip-noose at the end, and your lariat is complete. To ensure a good, free running noose, bend the end on over an eye or iron ring three-fourths of an inch in diameter. A lariat made of strips of buckskin braided and oiled is very serviceable.

To Tote, Pack, or Carry a Deer.—1. In dragging the carcass of a deer to

camp, never draw it by the hind legs. This is against the grain of the hair making the load heavy and damaging the meat. If a sapling is handy, sling the deer to it with its feet tied in pairs, and the nose secured to the pole, so that it will not swing and sling blood all over.

2. Cut off the deer's head, skin his legs down to his knees and hams, cut off the feet and shin-bones, tie the skin of each fore-leg to that of a hind-leg on the opposite side, put your arms through, and pack him knapsack-fashion.

3. First, see that the deer is well bled; next, cut entirely around the arms, working your knife carefully well inward until the intestines are clear of all connection with the flesh through the hams. Cut slits in the hind legs for the gambrel; then cut three poles about twelve feet long and four inches in diameter at large end, leaving a crotch at the end of two, and an inch or so of a small limb about a foot from the top end of the third; thrust the end up to limb through the cut in the legs, and place the foot of this pole against some firm object to keep it from slipping back, and then place the crotched end of the two poles over the leg, and under the pole at the gambrel, setting the poles so that you can lift on the bottom of each toward the centre, crowding downward on the foot of each pole till your deer swings clear of the ground. Commence at a point on the belly about eight inches below where the hams press together; cut only through the skin downward through the brisket and neck to under jaw, also from the hock of each fore-leg on the inside to the brisket, meeting the downward cut; skin the fore-legs, neck and body to the fifth rib, but no farther, and then open and take out intestines, cutting brisket well open to allow all to fall out clear from body, and then divide the body at the fifth rib, detaching the fore-quarters entirely; cut the large strips of meat from the shoulder blades, ribs and back of the fore-quarters, discarding the remainder. You have now hanging the hind-quarters with the skin attached; tie the skin closely with a cord just where it leaves the meat, and stow away the pieces from the fore-quarters on the inside the ribs of the hind-quarters. Now, if weather permits, leave hanging till the blood drains out and body is cold, and as much longer as may be convenient, only taking the precaution to hang over the whole a few branches of some evergreen to keep off the storms. Provide yourself with a packing strap and bag, take down the quarters, pull the neck end of skin back between the legs, draw down the tail and with a cord tie together, while the skin from the fore-legs should be brought around the body and tied at the small of the back, unjoint the legs just below the gambrel, and you have a compact, clean bundle that includes nearly all there is of value, and in such shape that the meat is entirely covered with the skin, and with a packing strap can be carried quite handily. If found too heavy with the meat inside, put this in your packing bag and make another journey. The hind-quarters are now in shape to stand quite a change in weather, and can be transported without injury, while the choice pieces of the fore-quarters not used in camp can be stowed away inside and kept clean and palatable. A deer cannot be nicely dressed without being hung up a sufficient time to allow the blood to drain out, and with the three poles mentioned a man that can carry seventy-five pounds can raise three hundred, although with a very large animal it may be necessary to use two sets of the poles with the crotches, the first set shorter, to get the body partly up before setting those long enough for the last raise.

To Waterproof Tents and Garments.—Dissolve paraffine in naphtha or benzine, and soak thoroughly.

2. Take half a pound of sugar or sugar of lead and half a pound of powdered

alum, dissolve them in a bucket of rain water and pour off into another vessel and steep your tent in it, letting it soak thoroughly. If the quantity is not sufficient increase in same proportion. Hang the article up to dry, but do not wring it.

Waterproof for Boots.—Six ounces mutton suet, six ounces beeswax, four ounces rosin, and a pint of linseed oil; melt the three first ingredients together and add the last. Apply on uppers and soles of boots.

2. Six parts tallow, two parts beeswax, one part rosin, one part castor oil, and two parts caoutchouc. When melted together, apply as warm as the leather will permit, with a brush.

3. Nantucket fishermen, when they want to make their boots waterproof, just pour half a gallon of boiled linseed oil into them, and let it stay there for a week.

4. Take one-half pound of shoemaker's dubbing, one-half linseed oil, one-half pint strong solution of India rubber. Dissolve the whole with a gentle heat (it is very inflammable), and apply with an ordinary blacking brush. One application will insure dry feet for several months.

5. Melt together one pound tallow, half an ounce neatsfoot oil, one ounce rosin, one-half ounce lamp-black, a table-spoonful of linseed oil. Should be rubbed in repeatedly, the boots or other articles to be warmed. It is said to be perfectly waterproof and not injurious to the leather.

6. In a pint of best winter-strained lard oil, dissolve a piece of paraffine the size of a hickory nut, aiding the solution with a gentle heat, say 100 or 140° F. The readiest way to get pure paraffine is to take a piece of paraffine candle. Rub this solution on your boots about once a month; they can be blackened in the meantime. If the oil should make the leather too stiff, decrease the proportion of paraffine, and *vice versa*.

7. Take neatsfoot oil, one and one-half pints; beeswax, one ounce; spirits of turpentine, four ounces; and stir until cold. Spread and rub this composition over the leather while it is damp; leather will absorb oil and grease better when damp than when dry. For the soles, take pine tar and rub it in before the fire until the soles will absorb no more. Three or four applications will be needed. The durability of the soles will be much increased.

8. Take one pint of drying oil, two ounces yellow wax, two ounces spirits of turpentine, and one ounce of Burgundy pitch—the hard materials melted over a slow fire, and the others added and well mixed. Rub this mixture on the boots at a distance from the fire, repeatedly, until the leather is saturated. Common black pitch was found equal to the Burgundy, and rather better. It is probable that other variations might be made without detriment, provided a proper consistency is maintained in the mixture of the oils, wax and pitch. The boots do better to dry three or four weeks after being treated with the composition, than to use them while it is fresh.

9. Take a quarter of a pound of beef and mutton suet, a teaspoonful of lard, half pint of neatsfoot oil, one ounce of beeswax, half an ounce of Burgundy pitch, and a half ounce of turpentine. Melt up the suet, the lard, the pitch and the beeswax in a pot, stir in the oil, and when off the fire, and cooling a little, put in the turpentine. If you want to be elegant, add a half box of blacking to give it a color. Warm the compound and paint the boots, upper and soles. It makes a boot quite water tight, and salt water cannot faze it.

10. India rubber cut fine, one ounce put in a pint of petroleum (raw) or Seneca oil. Let stand a week, and then apply with brush until the leather is saturated.

Rubber Cement.—One-half pound bi-sulphate of carbon; three handsful of

gutta percha ; put in a wide-mouthed bottle ; shake frequently ; at the end of two weeks strain through a cloth, return to bottle and cork tightly, for reasons that will be obvious. To apply, first dry the article, then smear the cement on and allow it to evaporate, before bringing edges together. After it has become light-colored in spots, warm and bring edges perfectly together ; stand away for awhile and the job is complete.

2. Four ounces of pure India rubber, one-eighth of an ounce powdered asphaltum, put together in a tin can, then add about six times the quantity of benzine, let it stand three or four days, then take a stick and work it over, then add benzine and stir it well until you have it about the consistency of honey ; then it is ready for use. It should be covered as tight as possible while dissolving, and afterward. To use it, scrape the polish from the rubber, then apply the cement to the place to be mended, and also to a piece of rubber to be used as a patch. Dry half an hour, and apply another coat, then, after another half hour, press the patch into the place over the break. Like all other preparations containing benzine, it must be kept away from fires, as it is as explosive as burning fluid.

3. Cut virgin or native India rubber with a wet knife into the thinnest possible slices, and with shears divide these into threads as fine as fine yarn. Put a small quantity of the shreds (say one-tenth or less of the capacity of the bottle) into a wide-mouthed bottle, and fill it three-quarters full of benzine of good quality, perfectly free from oil. The rubber will swell up almost immediately, and in a few days, especially if often shaken, assumes the consistency of honey. If it inclines to remain in undissolved masses, more benzine must be added ; but if too thin and watery, it needs more rubber. A piece of solid rubber the size of a walnut will make a pint of the cement. This cement dries in a few minutes, and by using three coats in the usual manner, will unite leather straps, patches, rubber soles, backs of boots, etc., with exceeding firmness. The India rubber, unvulcanized, can be obtained at most large stores where rubber goods are sold, and at some drug stores.

Sleeping in a Cold Room.—People who come in from a long period of out-door camping are almost certain to catch cold in a house when they return, because, having been accustomed to sleeping in the open air, they almost invariably leave their windows open. Many persons who went to bed well, are surprised to wake up in the morning with inflammation of the lungs, solely because they have hoisted the windows for ventilation. Hall's *Journal of Health* says that robust persons may safely sleep in a temperature of forty or under, but the old, the infant, and the frail should never sleep in a room where the atmosphere is much under fifty degrees Fahrenheit.

If there is some fire in the room all night the window may be opened an inch. It is safer to sleep in bad air all night, with a temperature over fifty, than in a pure air with the temperature under forty. The bad air may sicken you, but cannot kill you ; the cold air can and does kill very often.

Colds and Headaches.—Take of Norwood's tincture veratrum one drop on a small lump of sugar every two hours, and a three-quarter quinine pill every three hours. This prescription is recommended by Dr. N. Rowe, of the *Chicago Field*.

2. Dissolve fifteen or twenty grains of chloral in very little water, and with the tip of a finger rub it upon the seat of pain until you can sensibly feel the burning, and the skin is reddened.

Fever Diet.—When a patient will not take beef tea in the ordinary form, freeze it, and administer in small lumps. In this way it forms a most palatable article of diet.

Diarrhœa and Dysentery.—An old army prescription used in the Mexican War, is, a mixture of equal parts of capsicum (red pepper), Hoffman's anodyne camphor, and peppermint, with one-half the proportion of laudanum. Take twenty drops in a tablespoonful of water every hour until cured.

Croup.—Croup can be cured in one minute, and the remedy is simply alum and sugar. The way to accomplish this is to take a knife or grater and shave off in small particles about a teaspoonful of alum; then mix it with twice its quantity of sugar, to make it palatable, and administer it as quickly as possible. Almost instantaneous relief will follow.

Burns.—Charcoal has been discovered to be a cure for burns. By laying a piece of cold charcoal upon the burn the pain subsides immediately. By leaving the charcoal on one hour the wound is healed, as has been demonstrated on several occasions.

Cure for Wounds.—As soon as a punctured wound is inflicted, get a light stick (a knife or file handle will do), and commence to tap gently on the wound. Do not stop for the hurt, but continue until it bleeds freely and becomes perfectly numb. When this point is reached, you are safe; and all that is then necessary is to protect it from dirt. Do not stop short of the bleeding and the numbness, and do not on any account close the opening with plaster. Nothing more than a little simple cerate on a clean cloth is necessary.

Fish Bone in Throat.—If you get a fish bone in your throat, fast there, swallow an egg, raw; it will be sure to carry down a bone easily and certainly.

Chilblains.—Cut up two white turnips, without paring, into thin slices; put the slices into a tin cup with three large spoonfuls of best lard; let it simmer slowly for two hours, then mash this through a sieve; when cold, spread it on a soft linen cloth, and apply to the chilblain at night.

Snake Bites.—Apply raw sliced onions to the wounded parts.

For rattlesnake bite, make the patient swallow large and repeated doses of olive oil, until a quart is swallowed; rub mercurial ointment into the affected part freely.

Rattlesnake Bites.—The following is used by soldiers on the plains, and is said to be efficacious: Iodide of potassium, four grains; corrosive sublimate, two grains; bromine, five drachms. Ten drops, diluted with a tablespoonful or two of brandy, wine, or whisky, is the dose, to be repeated if necessary. Keep in a well-stoppered phial.

Bites of Rabid Animals.—Mix thoroughly two tablespoonfuls chloride of lime with a half pint of fresh water and bathe the wound almost without cessation until the physician arrives, or until the poison is neutralized.

Poisons.—An antidote for corrosive sublimate is the white of two eggs: it will neutralize the poison and change the effect to that of a dose of calomel.

If a person swallows any poison whatever, or has fallen into convulsions from having overloaded the stomach, an instantaneous remedy, more efficient and applicable in a larger number of cases than half a dozen medicines we can now think of, is a heaping teaspoon of common salt, and as much ground mustard, stirred rapidly in a teacup of water, warm or cold, and swallowed instantly. It is scarcely down before it begins to come up, bringing with it the remaining contents of the stomach; and lest there be any remnant of a poison, however small, let the white of an egg, or a teacup of strong coffee, be swallowed as soon as the stomach is quiet; because these very common articles nullify a larger number of virulent poisons than any medicines in the shops.

Poison Ivy or Sumac.—Sometimes wet salt or pork brine bound on the poison spots and kept wet, will soon dry them up. Very strong ammonia applied frequently as soon as the poison appears is an excellent remedy. This remedy is sometimes severe in its effects, acting as a caustic on the poison spots after the poison is killed. When ammonia fails, powdered gum myrrh, shaken up in sweet oil and used three times a day as a wash, will be found an almost unfailing remedy. When obtainable, it is the best to apply at first.

2. The last remedy has been used successfully as a preventive, by liberally anointing the skin before going into the woods, always allowing the remedy to dry on the skin.

3. Tincture lobelia, (equal parts water) or sugar of lead, or Pond's extract (Hammalis). Think the "Hammalis" the best; very cooling and allays the itching, etc. Ivy poison has a "run" of about one week, no matter what you apply.

4. Carbolic acid and glycerine, in the proportion of about one part of the acid to three of glycerine, which is also good for all kinds of insect bites, burns, cuts, bruises, etc.

5. Apply water as hot as can be borne to the part affected.

Disinfectants.—If onions are sliced and kept in a sick room they will absorb all the atmospheric poison. They should be changed every hour. In the room of a small-pox patient they blister and decompose very rapidly, but will prevent the spread of the disease.

2. One pound of green copperas, costing seven cents, dissolved in one quart of water, and poured down a water-closet, will effectually concentrate and destroy the foulest smells. On board ships and steamboats, about hotels and other public places, there is nothing so nice to purify the air. Simply green copperas dissolved in anything, will render a hospital or other places for the sick, free from unpleasant smells.

To Cook Mushrooms.—Peel both tops and stems, put in a stew-pan, with an ounce of butter and a pinch or two of salt to each pound, and serve up hot. This will answer to eat with fish, flesh, and fowl. *To fry them*—peel, dip in egg, and roll in cracker dust, season, and fry with oysters.

To Roast a Wild Turkey.—Having picked and cleaned a turkey, put up two short forked stakes pretty close to the fire; cut a thin straight stick with which spit the turkey; lay the ends of the stick in the crotches of the uprights, turn the bird slowly before the fire. A pan should be placed underneath to catch the gravy and dripping, with which baste the turkey from time to time. Make the basting of a little butter or lard, flour, salt and water.

To Bake Small Birds.—Quail, woodcock, pigeon, snipe, prairie fowl, etc., should be neither picked nor drawn. Wet the feathers thoroughly; make a hole in the coals, and put in the wet bird. Cover well with coals and hot ashes, to exclude air and prevent burning. When cooked, the skin and feathers will peel off bodily, leaving the well-cooked meat unmarred.

To Bake a Fish.—Cover the fish undrawn, with clay two inches thick, and throw it into the hottest of the fire. The clay hardens almost instantly, and the fish in its rough oven bakes through and through, retaining also its juices. The clay is then poked out of the fire, cooled with a dash of water, and a sharp stroke with a stick separates it from the fish. The fish's skin peels off with the clay and the dish is ready.

Having cleaned, split, and seasoned the fish, pin it to a board by wooden pegs; then prop the whole up before a smart hot fire of hot coals. The fish is very quickly baked brown.

Wrap the fish evenly in thin buttered tissue paper, and bury this in some wet brown wrapping paper, and then bake as in No. 1.

Venison Steak.—Cut your meat down the grain, an inch thick, place it on the fork of a stick, and turn it smartly over a hot fire of coals.

Venison Stew.—A venison stew, or a miscellaneous stew is made by cutting the breasts of fowl and the flesh of the animal into chunks; take sliced potatoes, slices of bread or crackers, sliced onions, and salt pork and place them in alternate layers, seasoning with salt and pepper between each. Fill up even to the top of the mess with water and boil till the potatoes are done.

To Cook a Head with the Hair on.—The head of a deer, or any large animal, with the hide on, is put into a hole in the ground sufficiently large to hold the head and a lot of smooth stones weighing two or three pounds apiece, and deep enough to sink them a foot below the surface. Make a hot fire in the hole, and another near by; heat the rocks as hot as they can be heated without cracking. Then, when both the earth oven and stones are hot, clean the fire out of the hole, put in a layer of stones, then the head neck down, and then the rest of the stones around and over the head; throw in a lot of mint, sweet weed, (grass or leaves will do), cover all with earth well packed down; let it remain all night, and in the morning eat it. Any portion of the carcass wrapped in a raw hide, can be cooked in the same way.

Baked Beans.—Put well soaked beans into the pot and the pot in the earth as above, surrounded either with hot coals or heated stones, and leave twenty-four hours. Cover the beans with water, one quart of water to a pint of beans; add two teaspoonfuls of molasses and sufficient salt.

Clam Bake.—Heat stones and lay them close together in circular shape. Have your material ready—clams, oysters, lobsters, fish, green corn, etc., and having placed them on the hot stones, cover with sea-weed, and the whole heap with a tarpaulin.

Mountain Hotch-Potch.—Take the best part of a neck of venison, or mountain sheep is better, cut it small, bones and all, and boil it until thoroughly well done, or until the meat separates from the bones. Then remove the bones and put in a quantity of green peas and broad beans at discretion not to make the hotch-potch too thick; add a flavor of onions and parsley, together with a fair proportion of carrots, turnips, and kale or other cabbage, taking care to make the combination thick enough, but not so thick as to deprive it of the character of a soup and convert it into a pottage and boil the whole for eight or nine hours. If you boil it for twelve, or even twenty hours, it will be none the worse, but all the better. If there be any left, boil it up again on the next day and it will be better than on the first. You can get some vegetables at the ranches.

SPORTING BOATS AND CANOES.

BOATS FOR SPORTING USES.

THERE are so many different services required of boats, and so many different kinds of boats made to meet those requirements, that the purchaser should be able to determine just what he wants a boat for, before he proceeds to buy, and then endeavor to obtain as nearly as possible what kind of a boat he requires. It is unwise to be in a hurry when purchasing. The first thing to find out about a boat is her age. Five years is about as old as is desirable under ordinary circumstances, as boats, as they are built now-a-days, begin to get old when they pass this age. However, if a boat is very strongly built and has been well used, she may be some years older before showing signs of decay. But it is not best to buy a very old boat, as the repairs will cost almost as much as it would to build a new one. The timbers should be examined closely and the planks all sounded and the condition of the buts carefully noted. The planks near the garboard should be particularly observed, as there will be a leak there if they are not pretty sound, which cannot be stopped without putting in new planks. If the boat has a centre-board the case should be examined round the bottom, as it is a great place for leaks.

The kind of fastening used is also an important item to look to. Copper is undoubtedly the best, as there is no rust from it. The great objection to it is the high price. Builders seem to favor galvanized iron, as it is much cheaper than copper and does not rust to any extent. But a boat fastened with common iron is to be avoided, as the rust eats right into the wood. A boat painted white cannot be kept looking decent after she is a few years old if fastened in this way.

Lapstreaks are not near so good as smooth seamed boats.

They are not so strong and are much more easily strained. If they once begin to leak it is almost impossible to stop them. They can be built over so much cheaper than the others, and always sell a good deal lower, but they are growing more unpopular every day, and there are not many of them built except small ones. So long as a boat's hull is in good condition, the state of the rigging and spars is of minor importance, as the expense of putting these in shape is not very great.

All the running gear of a yacht should be composed of three sizes only of cordage, as it can then be all utilized, and as the blocks will also be of only three sizes, the halliards, sheets, etc., will be certain to render easily. Four stranded rope is the best, as it is neater to the eye, renders better through the blocks, and is pleasanter to handle than ordinary three strand rope is. Always keep the end neatly whipped.

To Whiten Decks.—Dilute muriatic acid with four times its bulk of water and wash the deck with the solution. Swill well afterward with clean water.

To Waterproof Paper Boats.—Take sixteen pounds orange shellac, and four and one-half gallons alcohol. Let the shellac dissolve in the alcohol and apply with a brush.

Calking Boats.—After calking with cotton prepared for the purpose, and sold by ship chandlers, *putty* the seams of your boat. When first put in the water the swelling of the planks will force some of the putty from the seams; haul your boat out and rub smooth with sand paper.

Rules for Sailing.—The following admirable rules were originally published in *Forest and Stream*, a leading New York sportsmen's journal, but have since been copied and passed to the credit of other journals in both England and America:—A close observance of them will prevent accident and add much to the comfort of sailing.

1. Know, before you leave your anchorage, or wharf, that everything is in order, especially your tack and pennant for reefing.

2. Always carry a compass. A whaleboat's compass answers nicely in a small sailboat.

3. Boats of any considerable draft—one and a half feet and more—should carry a lead line, the first fathom marked off legibly in feet. This will prove to be very valuable in finding channels in the night, and fogs.

4. Never make your halliards nor sheets fast by hitching or knotting. They

should be made fast either by sufficient turns around the cleat, or by a simple draw-knot, which any boatman can show you.

5. When the wind is very strong and puffy, pass the sheet once around the cleat and hold the end in your hand.

6. Always keep the halliards and sheets in order, by carefully coiling them so that they will render from the top of the coil.

7. Never sit to the leeward of your helm, nor allow any one else to sit where their position will interfere with the free play of your tiller.

8. Never jibe a sail when the wind is blowing freshly, unless it be a necessity. If you must jibe, do so with your peak settled.

9. Never jibe the sail with a sheet wide off. Trim in your sheet rapidly as you press up your helm, take a turn around the cleat, and ease the strain when the sail passes over, by letting go your sheet as your direction from the wind may require. As a rule, it is better to go about.

10. When, from a heavy sea, a boat refuses to mind her helm, and misses stays, to get her on the other tack you must perform what is called wearing. This is done by settling the peak of your sail, and following the directions above for jibing. Once jibed, haul up your peak, trim in your sheet, and bring her on her course.

11. In heavy winds and high waves a boat will sail better, and be safer with the sheet started a little. Very few boats sail well at any time, when the sheet is trimmed down flat.

12. Never luff a small boat in rough water and high wind, so as to stop her way. When a puff of wind is too strong for your safety, hold the boat on her course and ease off the sheet. The danger of stopping a boat under the above circumstances is, that they are liable to upset when you put up your helm and keep away to fill the sail again. If your boat has lost way, slack off your sheet, put down your helm, and let her fall off. When she has fallen off sufficiently to get a good full on the sail, up helm and trim in rapidly.

13. Always keep an eye to windward, watching the surface of the water for the approach of puffs of wind.

14. Being overtaken by a squall, settle your sail, and tie up snugly, waiting to make sail, until you have felt the weight of the squall, and know how much sail to make. If the squall promises to be very severe you had better come to an anchor.

15. In reefing, take in all sail; trim in your sheet perfectly flat and make secure. Then haul out your clew with your pennant and make fast. Next tie down your tack, then tie in your nettles or reef points with square knots, commencing at either end. In shaking out a reef, the sail being down, reverse this process, commencing to untie your reef points at the middle and working to the end. Keep to the windward of your sail.

16. In running off dead before the wind be careful not to jibe. If the wind is heavy it is safer to run with peak settled. In rough water, running off, look out that your boom, striking in the crest of a sea, does not trail aft and jibe your sail. This is called tripping. To prevent this bring her more on the wind by putting your helm down. If seas are liable to comb over on your quarter or stern they can be broken by trailing a buoy or basket, or two oars lashed together, about five fathoms astern. This drag will also steady the motion of your boat.

17. Never carry sail for the sake of carrying it.

18. Never sail strange waters without a chart, or what is better, without a pilot.

19. As a stranger to them, avoid tide-rips and whirls.

20. Be cool in emergencies. If sailing with company, do not let them distract your attention from the management of your boat.

21. Remember that on the wind the starboard tack has the right of way over the port; and that a vessel sailing on the wind has the right of way over one that has her sheet off.

These rules apply to cat rigged boats especially. In the main they apply to sloop rigged boats also.

SUGGESTIONS.

1. If alone it is convenient to have the peak halliard led aft.

2. The average of boats sail in moderate winds and smooth waters within four points of the wind.

3. A boat on the wind sails better with the gaff to the leeward of the topping-lift.

4. Keep your boom well set up.

5. The upper and outer half of your sail gives the most of your speed when you are on the wind.

6. If your boat carries a lee helm, watch her.

7. In keeping your boat off from the wind, where your room is limited, pull up your board and flat your sheet. Settling the peak also helps this movement.

8. Learn to work your boat while sitting down.

9. Finally, if you don't know that you know how to manage a boat in every particular, hire a competent man to go with you and teach you.

The Al Fresco Boat.—This is a boat invented by Dr. Chas. J. Kenworthy of Jacksonville, Florida, for use in that State. Length, fifteen feet; beam, four feet eight inches; depth between deck and ceiling, seventeen inches; almost wall-sided, and flat in floor at point of greatest beam; good entrance and exit, or, in other words, fine lines forward and aft; deck same as sneak-box, dipping five inches from centre of cock-pit to each side, and to stem and stern; cock-pit four feet long by two feet two inches wide; hatches ten by fourteen inches abaft the mast and cock-pit to stow provisions and general plunder; centre-board, three feet long; cat-rigged, with gaff or spreets and sliding gunter; canvas apron as in sneak box, to be used when beating to windward; bulkhead at after part of cock-pit. In such a boat provisions and plunder can be protected from the weather, two persons can be comfortably accommodated and lodged; she can be easily transported; provided with hatch from cock-pit she can be converted into a Saratoga trunk; she works well under sail, rows easily, and proves comfortable and sea-worthy in a sea way. Owing to the shape of her deck and protected cock-pit, she would weather a severe storm.

The Newport Boat.—This differs from the ordinary cat-boat, only in having a bowsprit, and setting a jib running free. It can not be carried to windward, as it would alter the hang of the boat, the mast being stepped cat-boat fashion in the "eyes of her."

The Fair Haven Sharpie.—General construction the same, though the length varies greatly and the lines are different. Most of them have two masts (some only one) with leg-of-mutton sails. A sixteen feet boat should be four feet four inches wide on the top and three feet eight inches on the bottom, this having a place of four inches. Depth amidships fifteen inches; at the bow nineteen inches. Decked over four feet on the bows and two on the stern, with a washboard of four inches and combing of two inches. Centre board four feet long, the forward end being against the mast. Mast four inches in diameter in the largest place. Sail made of thirteen yards of best twilled cotton. Boat well provided with seats, and steered with a rudder. A twenty feet boat will cost seventy-five dollars. They are exceedingly fast, very stiff and can be easily steered by trimming.

The Qui Vive Canoe.—Manufactured by J. F. West, East Orange, New Jersey. The frame is made of ash. The main stringers are nine in number, and all outside of the ribs, so that everything that touches the skin runs fore and aft. This, and the style of building, also putting the canvas on without a seam below the gunwales, Mr. West claims to be the inventor of. The six other stringers are then added, at proper distances, and firmly secured. The canoe is then turned over, and solid braces put in close to bow and stern. Fifteen cross ribs are then put in at proper distances and riveted with two copper tacks at each intersection with the stringers. While doing this the lines must be trued, as these ribs determine the shape of the canoe. The mast step is then put in, and fastened to the keelson and two ribs, also a piece of three-quarter inch pine board, from gunwale to gunwale, with a mast hole in it. Next the peaked carlines, or deck-supports are put in. The form is then removed, after which the well frame and combings are placed in position, and firmly screwed to the gunwales. The deck has a slope of two inches from well to bow and stern. When all the wood work is complete give it a coat of paint, after which the skin, No. 10 cotton duck, is put on without

a seam. Next paint bow and stern, also along the keelson. While the paint is yet fresh put on false bows of sheet iron and an inch pine keel, which latter is bolted through the skin to the keelson. Next the deck is put on, of lighter canvas, and then a coat of boiled linseed oil is given. Over the oil apply paint, and finally varnish. The dimensions are, length, fourteen feet, beam twenty-six inches, depth amidships, from ridge of deck to bottom of one inch keel, one foot. She is decked over at bow and stern, with a well amidships four feet long by twenty inches wide, surrounded by an inch combing. Over the well is fitted a white rubber apron, which buttons tight around the paddles, and effectually keeps all spray and rain from getting below. Her means of propulsion are a double bladed paddle and sails. The sails are a standing lug main and a jib foresail. The mast is four feet six inches above deck, but the peak of mainsail when hoisted is over six feet. The sails are so arranged that they may be set or taken in without the canoeist leaving his seat. The painter is rove through a brass eye at bow and stern, and runs entirely around the canoe, being used as jib outhaul, and to keep the apron close to the deck in a sea. The "Qui Vive," complete with mast, sails, apron, seatback, paddle, stretcher, flag and flagstaff, weighs fifty pounds. The seatback is "Rob Roy" style, two strips of wood to rest along the back without touching the spine, and is hinged to the after combings.

With the paddle and a rubber sheet a water tight cabin can be rigged at night, and there is ample space below deck to allow the knees of the sleeper to pass, so that he may turn over, which is necessary for a comfortable sleep. The sailing qualities of these canoes are astonishing, they will beat to windward, and require very little steering. The paddle is straight bladed, seven feet six inches long, and weighs two and a half pounds, it is used in steering when under sail.

The cost complete is only fifty dollars.

The Chaloupe.—This is the principal fishing craft of the St. Lawrence, an eight-ton lighter-built craft of three feet draught, one-masted sloop, rigged, with jigger sail astern, and stub bowsprit. Amidships is a hold for ballast and cargo, forward a diminutive cabin with berths, a seat and a table, and astern a clear space for handling sheets and helm. A seaworthy craft.

The Mackinaw Boat.—These are probably the best small boats made for heavy weather. A Mackinaw boat only twenty-two feet in length has been known to ride into the severest storms of Lake Michigan. As surf boats they are unequalled, for with proper handling they may be beached at any time without serious danger. They have a good deal of sheer, with greatest beam forward of amidships, and sharp at the stern, which prevents the shipping of water aft while running with the sea. These and the square sterned dories are in general use by the fishermen.

The Chesapeake Canoe.—The hull is constructed from three pine logs in most cases, which are brought into shape by the axe and adze, with the assistance of the plane and other tools, the said logs being reduced to a thickness of about three inches on the bottom of the canoe, thinning out to an inch and a half at the gunwale. The three sections forming the boat are put together with treenails. The boats are of various lengths, varying from twenty up to forty-five feet, but boats of from twenty-five up to thirty-one feet long are in most common use, those of the latter length having about six feet beam, being, as you perceive, very long for their beam. Their lines, of course, from being so narrow, are beautifully fine, and the boats being sharp at both ends, causes them to leave the water as easily as they enter it. The rapidity with which they sail with "sheets lifted" is wonderful, and they are also very good on a wind, especially those with centre-boards. (They are built both centre-board and keel, but the centre-board, as with small craft of all descriptions, has the advantage.) As to rig, they carry two sharp, or "goose wing" sails, with a jib. The larger sail of the two is the foresail. The sails are bent on the masts and set by means of spreets, reaching from mast to clew of sail. For racing they carry in addition to the above sails a large balloon jib and a stay sail, or else have an extra step between the fore and mainmasts and set an extra "goose wing" there, this of course being only used with wind abeam. Off the wind, large water sails are set under the fore and main sails. Now, to shorten sail you cast the becket rope off the spreet of your mainsail, rolling the spreet up in the sail, which is furled round it, and the becket rope makes a gasket to lash it in place to the mast; then take the "chock block" out of the upper step of your foremast, which step

is cut longer to enable a block to be set in forward and aft of the mast, as may be desired, for going on or off the wind, and you have your sail reduced without any naked spars to hold the wind and list the boat without being of any service. To drive her, if the wind increases, you next take in your jib and go under your foresail; if the gale increases, and it must be a gale indeed to render it necessary, take in your foresail and substitute your mainsail for it, which is quickly done, as the after part of the *upper* step of the foremast is in a hinge, and the lower one on a *pivot*, so that the mast can be lowered fore and aft without taking it out of the step. Now you have your boat under sail that you can go with, when large "pungies" have to make a harbor, and the boat steers well under any or all of the above sails, owing to changing the rake of her masts, and holds on well. These boats are in universal use on the Chesapeake from the capes to the head of the bay.

Yarmouth Fishing Canoe.—To a gunwale of desired length and strength, attach ribs of pine, about two inches wide by an eighth thick, bent in the form desired. Longitudinal strips of the same are then tacked as closely as possible to the ribs outside, and over all, a covering of canvas is tightly stretched. A keel of pine an inch wide and one-half inch thick (tapering at the sides) is then screwed on, and whole outside coated with shellac varnish, in which a little boiled linseed oil has been mixed. This makes a perfectly waterproof canoe capable of standing hard knocks. Such a one, fourteen feet long, will weigh about fifty pounds. Address W. A. Lawson, Yarmouth, Nova Scotia.

The Rob Roy.—Dimensions. Length, fourteen feet; beam, twenty-six inches; depth, eight and a half inches; rise of deck, two inches; bulkheads, three feet from each end; cock-pit, three feet four inches by eighteen inches; combing, two inches high; mast, one and three-quarter inches in diameter at deck; siding and decks, one-quarter inch thick; ribbed between bulkheads—ribs, one and a half inches apart.

Material. Keel and stems, oak; ribs, elm; sidings, decks, deck-timbers, back-board, stretcher and combing, cedar; gunwales, mast and spars, spruce; paddle, spruce or ash.

Weight Complete. (This one) fifty-six pounds; might be built down to fifty pounds safely. Price, from seventy-five to one

hundred dollars. Built by J. H. Rushton, Canton, St. Lawrence County, N. Y.; Waters & Balch, Troy, N. Y., or Mr. Jarvis, Watkins, N. Y.

Barnegat Sneak Boat.—This is a craft originating at Barnegat, New Jersey, and much used for duck shooting:

Length, twelve feet; with midships, four feet; width of stern, two feet nine inches; depth of stern, seven inches. Sprung timbers all of one pattern, nine-sixteenths by thirteen-sixteenth inches; distance apart, eight inches; deck timbers natural bend, one inch by seven-eighths. Cock-pit, inside measurement, length, three feet four inches; width at bow and stern, eighteen and a half inches; midships, nineteen inches. Combing, height of inside at bow and stern, two and three-quarter inches; midships, two inches; from bottom of combing to top ceiling, thirteen inches. Trunk on port side, set slanting to take a fifteen inch board trunk placed alongside and abaft of forward corner of combing. Rowlocks, height, six inches; from combing, nine inches; middle of to stern, four feet seven inches, made to fold down inboard and to fasten up with a hook. Stool rack runs from rowlocks to stern, notched at ends into fastening of rowlocks, also notched at corners and hooked together, rest against a cleat on deck outside, and are hooked to the deck inside. In a heavy sea the apron is used. It is held up by a stick from peak to combing. Thus rigged the boat has the reputation of being able to live as long as oars can be pulled. The apron is tacked to the deck about two-thirds its length. The wings are fastened to the top and bottom of the rowlocks. Mast hole, two and five-eighth inches; two inches from combing. Drop of sides from top to deck, five and seven-eighth inches, dead rise, eight inches. Over cock-pit a hatch is placed. Everything connected with the boat is placed inside, gunners often leaving their guns, etc., locking the hatch fast. The boats sail well, and covered with sedge are used to shoot from. With the hatch on, a person can be protected from rain, and with blankets, can be accommodated with a night's lodging. Boards for boats, white cedar, five-eighths of an inch thick; deck, narrow strips tongued and grooved.

A Common Gunning Boat.—Dimensions for a boat large enough to hold two persons, with guns and a dog. The dimen-

sions of a boat should be about fifteen feet long and four feet wide. Built lap-streak fashion, with streaks and knees of cedar, and the laps fastened to the frame by being riveted with copper boat nails. The seams of the laps between the knees should be riveted together with smaller copper nails. A piece of white oak will make a good keel, and should the boat be used where there is a stony bottom, cover the bottom of the keel with a strip of sheet copper or brass to keep it from getting worn and ragged. Have the boat partially decked over forward, and make the dog a bed under said deck. In that position he will be out of the way, and his weight will help "trim" the boat. The less "belly" the boat has the stiffer it will be. If you use your boat on flats where there is not much water, make it broad on the bottom or not much rounded, and with a shallow keel. Deck over the sides of the boat for six inches, and put a cleat one inch high on the inside edge of it, to keep out the water from the boat. Fasten gun racks to the knees on each side of the boat. When finished, all knots in the cedar should be bored out and the holes plugged with solid wood.

English Centre-board Gig.—These craft have been brought to America from Southampton, England—clipper built, square and rather full stern; length fifteen feet, width four feet eight inches, depth two feet, rising at stem and stern, so as to give about four inches sheer; decked three feet six inches on bow, and two feet six inches at stern—decks connected by washboards on each side six inches wide. Below the decks two bulkheads are fitted, so as to make a water-tight compartment fore and aft. Exactly amidships a centre-board three feet six inches long is placed, the case of which, however, does not rise above the level of the thwarts so as to interfere with the rower. Rigged for sailing with a sprit, mainsail, and foresail or jib. Mainsail is used without a boom, except when running, when it can be boomed out with a boat-hook. The main sheet passes through a small block which travels on a hawse at the stern, and the tack of the foresail is made fast either to the stern or a small bumpkin eight inches long. Sprit made in two pieces joined by a ferrule, so as to allow of its being shortened and a reef taken in the mainsail; the sails are altogether inboard. Sails well and is an excellent sea-going craft.

The Gunning Skiff.—Built by Sam. T. Quitman, South Oyster Bay, Long Island, New York. This is a serviceable and seaworthy craft, and is considered an improvement on the Barnegat boat.

Dimensions: eleven feet keel, twelve feet nine inches over all on deck, four feet three inches beam, with a swinging centre-board, which acts of its own accord when the boat is sailing in shallow water. The boat is also supplied with a lug sail of ten yards of canvas; mast, ten feet; sprit, fourteen and one-half feet; sail nearly square. She is decked over four feet forward and two feet aft, washboard one foot wide. The combing is four inches high, and arranged for thatching with grass. Depth, fifteen inches from top of combing. The sail is made so as a reef can be taken when necessary.

The Nautilus.—This canoe is of different lengths, with two masts, built for sailing or paddling; carries no centre-board, but a two and one-half inch keel; greatest beam twenty-eight inches; weight, fifty pounds. Price, one hundred dollars. William Byles, Harlem, and J. Everson, Greenpoint, builders.

The Pirogue or *Dug-out* is hollowed from a single log, or may be shaped from several; is in use from Maine to Florida and Minnesota, and is propelled by paddles, seldom carrying more than two persons.

Birch Canoes.—Of various patterns, sizes, and degrees of merit, carrying from one to eight persons with their luggage. Price varies from twelve dollars to twenty dollars in the Provinces. The best are obtained in Nova Scotia. Good ones can be bought at Old Town and Princeton, Maine.

Ribless Boats.—Sail boats, for coast and river fishing, "built up" without ribs, are very popular in Massachusetts Bay on account of their speed, lightness, cheapness, and ease of construction. To make one, the only material needed are good clear pine boards, each the whole length of the intended boat, a few pounds of small nails (galvanized,) and the material for the stem, keel, and stern post. The boards are run through a saw mill and cut into strips about an inch and a half wide, and out of these the boat is built up according to working models. These models are merely patterns of wood that give the outside of a half-section of the boat. They give the shape of a boat at every foot of her length, and are formed

from some existing boat or drawn from a scale designed by some competent boat-builder. The keel, stern post and stem are set up and secured together firmly, and then to the keel two strips are fitted horizontally, one on each side, and having been planed down at each end to fit the model, holes are bored through them and they are securely nailed to the keel. Over each is laid another strip, and with the plane and shave it is fitted to them in such a way as to conform to the shape of the boat, and then each is nailed down as before. In this simple manner the work proceeds. As the strips are nailed one over the other, they are bent to conform to the shape of the boat, and bevelled to give the sides the right form.

A single day's practice in fitting the strips to the shape of the boat will enable a good carpenter to do the work with neatness and dispatch, and any person skillful with plane and hammer could in time turn boat-builder. When the sides rise to the gunwale, a broader and thicker strip of oak or ash is laid over all, to act as a fender and gunwale. During the whole process, the strips are kept heavily painted with white lead, and when all is finished, we have a ribless shell, showing no nails except at the top, exactly conforming on the outside and inside the model. To give lateral strength, shorter pieces of the strips are built up from the keel inside, and carefully fitted to the sides. The seats are placed over these, and then decks, storeroom and cabin may be added as desired. Boats made in this way are very light and buoyant, and, being smooth on the outside, are good sailers. In case of injury, they are easily repaired by cutting out the broken place and inserting new strips, secured by backing on the inside. In practical use, such boats are found to be swift, dry and safe. They make good sea boats, and are said to resist injury with ease. In sailing they demand plenty of ballast, to compensate for their lightness. Their cheapness and ease of construction are rapidly bringing them into favor, as the cost is about one-third less than by the ordinary method. Two men with the materials in hand can easily make a boat eighteen by six in sixteen days.

The Whitehall Boat.—A Whitehall boat is a carvel-built boat (smooth, not lapstreak,) generally seventeen feet in length, though sometimes nineteen and twenty-one feet, and has a movable mast with spreet sail. It can be sailed or rowed equally well, and with

a breeze can be managed without oars or rudder, the boatman steering her by simply shifting his position, fore, aft, or amidships, according as he wishes to luff, keep her off, or hold her on her course. This kind of boat originated with the fishermen of Fulton Market, New York, about forty years ago.

Fenner's Portable Boat.—This is a canvas skin on a lattice frame of great lightness and strength. Weight from twenty-five to seventy-five pounds, the largest having carrying capacity for half a ton. It folds or packs in the space of a valise or trunk—the smallest eleven by twenty-two by twenty-seven inches. Its strength is greater than the ordinary birch or cedar used in light boats, and when made impervious to water by Mr. Tappan's process, makes the dryest of boats. The principle on which the frame is constructed has its own peculiar advantages. Of strength first, as seen in many railroad bridges, and of compressibility, where each intersection moves upon a brass rivet. After it has been shoved together there still remains a space in which the canvas is laid, with room for tent, clothing, and victuals. The whole is then closed by folding down the two seats for a lid, and the boat is then a stout trunk, which can be placed in another box or not. It also can be used as a shelter tent. Jointed paddles are to be used with it. C. A. Fenner, builder, Mystic, Connecticut. Sold by Holberton & Beemer, New York, and Bradford & Anthony, Boston.

Hegeman's Folding Boat.—This is a light, jointed frame of sufficient strength to keep its canvas shell in proper shape, and sustain the weight of its load. It folds with it the canvas into a complete parallelogram whose weight is not more than forty pounds. This boat is not sinkable; it will sustain a dozen men easily. It is a good boat for many purposes, and can be bought at prices ranging from $80 to $100. It is built at Balston Spa, New York.

The Monitor Raft.—This is a capital angler's contrivance for use on lakes, consisting of rubber cylinders (to be inflated), connected by a suitable frame work, with an elevated seat for the fisherman. Sold by the Combination Rubber Company, 62 Church street, New York. Price $75.

Treat's Steel Frame Canoe.—This is the invention of John H. Treat, of Lawrence, Massachusetts. Weighs fifty-seven pounds

when fifteen feet long. Can be packed in a box six feet by seven inches, by four inches. The cover is made in a single piece of canvas, and can be folded and carried in a haversack over the shoulder. The gunwales from being lined with steel, are but one-half an inch thick. They are said to be strictly impervious to water, and can be covered with a buttoned tarpaulin so as to keep out rain and waves. Address William H. Rollins, Boston, Mass.

The Colvin Canvas Boat.—This boat, or canoe, is usually made twelve feet long by four feet wide. Only the canvas skin or cover is carried; it weighs ten pounds eight ounces (leaving out the light leathern pieces which receive the corners of keelson and gunwales), and when compactly folded, occupies the space of less than half a cubic foot. It has carried in a heavy storm, far from land, a burden of seven hundred pounds, and will, in smooth water, convey a much greater burden. The prows are guarded with brass cut-waters, riveted on. The keelson and gunwales are improvised from stout poles cut in the wood, when required, and two dozen stout boughs form the ribs. The skin is made fast to the gunwale by leathern thongs or points. It is in reality a make-shift, to use in places so inaccessible that it will not pay to carry an ordinary portable boat. Made by R. C. Scott, Albany.

The Adirondack Boat.—This is a round bottom, lap streak cedar boat, fourteen to eighteen feet in length, accommodating two or three persons with their camp outfit. They are stiff and safe. C. J. Chase, Newcomb, Essex Co., New York, Reuben Cary and Henry Stanton, of Long Lake, W. E. Martin, E. Peck, and G. Philboots, of Saranac Lake, are all good builders. Cary's and Stanton's models differ from Chase's in being higher in the stern and somewhat squarer, while his are not so sheer and alike at both ends. There is, perhaps, a little more style to the Long Lake boats, while Chase's are somewhat stiffer.

Bond's Sectional Boat.—This is made with iron sides and wooden bottom, with an air chamber amidships. It is constructed in two sections of eight feet each, which can be unjointed, and one-half of the boat set in the other. It is flat-bottomed and can run in shoal water, and being of iron is less vulnerable to snags and rocks than other boats. Built at Cleveland, Ohio, by Thomas E. Bond; price $60.

Waters' Paper Canoe.—This is an improved Nautilus canoe, made by Waters & Son, of Troy; price $100 to $125. The body is made of tough linen paper about one-sixth of an inch thick; length fourteen to sixteen feet, depth amidships eight and one-half inches. It has a canvas deck which buttons at the sides. Weighs fifty to sixty pounds. It has ample accommodations for camp stuff, but carries only one person. Objection has been made that the material (paper) would soon become soft and destructible, but the long voyages of months and miles made in this craft wholly controvert this. They will stand any kind of sea.

The Rushton Boat is made at Canton, N. Y. This is a round bottom lap streak cedar or oak boat, with much more sheer and bearings than the Adirondack boat, and much lighter, as they are made to weigh as little as thirty pounds. It is best adapted for a single person, but will accommodate two. Length, eleven to thirteen feet; weight, thirty to fifty-five pounds.

The English Canoe.—This is a bass wood canoe made by William English, of Peterboro, Canada, and like the Gordon canoe, more nearly approaches the Indian birch canoe in shape and character, than any other craft afloat, but is much stronger, stiffer and faster. It is made of thin boards laid upon ribs two inches apart so neatly that the seams cannot be detected on the outside. Length fourteen to eighteen feet, weight about sixty pounds, and will carry three persons and their baggage with ease. They are not easily fractured, as bass wood is very tough. They can be fitted with a small sprit sail. Price $25.

The Gordon Canoe is like the English canoe in all respects except the shape. It is, if anything, perhaps a little more cranky but is preferred by many experts. It is made by Thomas Gordon, at Lakefield, Peterboro, Canada.

The Herald Canoe is made at Gore's Landing, Rice Lake, Canada, by Hutchinson & Co. Its material is white cedar. It has no ribs, and is so constructed that it resembles a dug-out canoe, both inside and out. Instead of ribs it has transverse strips of cedar jointed neatly, constituting the frame of the canoe, and upon which similar boards are laid lengthwise. Price, weight and dimensions similar to the above.

Berthon's Self-Folding Boat.—It is the invention of Rev. E.

L. Berthon, of Romsey, Hampshire, England, and differs from all others. It claims to combine the necessary elements of the life-boat with the advantage of being folded up to one-tenth of its size and again opened and set up in half a minute. The ribs are longitudinal, joined at the bow and stern by strong linkage. When the boat is closed up the ribs close in parallel lines, and when open they are raised into position by the use of braces, and the proper form of the boat is maintained by these braces, the flooring, seats, etc. The sides are of very strong canvas and India rubber compartments, inclosing a continuous air chamber. These boats are used for yachting as well as for higher uses. Price $25 to $250 for the largest, which is fully equipped with mast and sail. Captain Nares took several on his British Arctic expedition.

Lyman's Patent Rowing Gear.—In this contrivance, by which the oarsman is enabled to propel his boat while facing where he is going, the oars, or rather, to speak properly the sculls, are made in two pieces. The outer end of the loom, or portion of the scull inboard, is fastened by a ball and socket joint to the gunwale, and a short distance forward, by a similar joint, is fastened the shaft, or outboard portion. A light iron lever, or connecting row, joins the two pieces in such a manner that the blades of the oars move in the same direction as the handles, reversing the ordinary method.

The action is absolutely without noise, which will be appreciated by every one who has attempted to row on to game. The sculls, although but eight feet long, give as much reach and power, apparently, as could have been obtained in the same boat with ten feet sculls, a length that would have necessitated outriggers. By simply drawing the looms against the gunwale, the blades are folded back as a bird folds its wings. Although the gear can be detached instantly, the sculls cannot become unshipped by accident. They feather well and leave the water without noise. It is adapted for every boat propelled by oars, except, perhaps, outrigged racing shells.

Address William Lyman, Middlefield, Connecticut.

WOODCRAFT.

HINTS TO SPORTSMEN.

THE sportsman can, if need be, in stress of accident or misfortune, forego nearly every appliance of civilization, and having learned the ways of the savages, live and enjoy life as the savages do. The skins of animals he slays, or the bark of the birch or the hemlock will make him a shanty; pieces of fresh peeled bark supply him with cups and plates which need no washing after use, as they are thrown away. Cedar roots and tough long grasses supply twine and rope, a spindle of hard dry wood rapidly revolved with the hands upon a piece of soft pithy wood, or with an ordinary bow with a single turn of the string around the spindle, will obtain a fire; he can bake his fish and bread in the ashes and broil his meat on a stick; and provided he has only sufficiently warm clothing, a trusty gun, a hatchet, knife, matches, and compass, he has the measure of his necessities full.

Waiving luxurious comforts, it is always desirable to travel as lightly as possible and as little encumbered, especially if the tramp be long and continuous and not broken by occasional temporary camps. Nevertheless, experience teaches that the trouble of carrying an extra pair of walking-boots, or at least a pair of moccasins or easy shoes, is well repaid. If your feet are blistered, coat the inside of your socks (woolen are best,) from the ankles downward with common yellow bar soap, repeating the application for two or three days, by which time the feet will become hardened. It acts equally well as a preventive. Never suffer the shoes to dry after wetting, before they are thoroughly oiled, soles as well as uppers, with castor oil. The least inconvenient dress is a woolen overshirt with pockets, worn as a blouse and fastened around the waist with a sash or belt. The toe of a stocking fitted into the shirt makes a good pocket, if you have none already. A heavy Hudson's Bay or

Canadian overcoat, with hood, serves as coat, blanket, pillow, and cap combined. Always carry plenty of twine and large needles. If a piece of your clothing is torn out, patch it with anything available. The legs of a boot make the best possible seat for a pair of trowsers, and can be as easily fitted as woolen stuff. If your felt hat is too loose, put a stick under the band and give it a half-turn. If you want a candle-stick make a loop of birch bark and slip the ends into a split stick; then insert your tallow dip. If you wish a torch, take sheets of birch bark and slip them in the slit. A pine knot is better than either where no danger is apprehended from fire. If your matches are wet, and it rains heavily you can find bits of dry punk in the excrescences under the bark of birch and maple trees; flash powder into lint or tow and then ignite the punk. Either fire powder from your gun or use a flint and steel. If lost in a hardwood forest and can find no water, one can generally get sap enough for a drink by cutting a chip out of a maple or birch, and making a spout to let it flow clean of the trunk. Water can be obtained by digging a hole into a marshy spot and filling it with grass. Then take a piece of elder, pipe-stem, or any hollow tube and setting it perpendicularly upon the grass, pack the earth around it. Then apply suction with the lips and you will get water enough to assuage thirst. (By the way, in a desert birds fly toward water in the afternoon, and away from it in the morning.) Carry your matches in a vulcanized rubber box to prevent wetting; or a bottle will answer. There are a thousand little devices and resorts which one learns by experience, and which occur to him naturally when required, but are difficult to inventory for others' use. For provisions, one must be governed by circumstances. Tea, flour, ham, salt pork, soda powders, salt and pepper in quantities required, are all that are necessary. Never carry ground coffee; it is bulky and will impregnate the other stuff with its aroma, especially when wet. Borden's condensed coffee takes no room, and is a luxury indeed. But, if the sportsman insists upon carrying ground coffee, he will find the grounds very useful to keep fish fresh, taking out their entrails and gills, and sprinkling the coffee grounds thickly into the belly and mouth of the fish; the more grounds used to each fish the better.

Desiccated food of all kinds is compact, and goes a great

way. Pickles and onions are a desirable addendum and an excellent relish. We are writing for those who propose "roughing it" in earnest. Of course, for ordinary camping out one may add as many luxuries as he likes, and the greatest of these is a camp kit of tin ware, containing knives, forks, spoons, cups, plates, broiler, frying-pan, teapot, pepper and salt box, syrup and tea caddies, sufficient for five or six persons, all fitting nicely together in a large water-pail, the whole costing about twelve dollars and weighing nine pounds. The old army knife-fork-and-spoon combined is very convenient to carry. Always take blankets and warm clothing when it is possible, and a change of under and outer clothing. One's cast-off suits are the best, as they can be thrown away in the end of the journey, leaving the party less weight to carry home with them. An "aqua scutem," a small waterproof cape that can be folded into a small compass in the pocket is sometimes a great comfort. Of miscellaneous articles for a party who intend to remain much in camp, we enumerate the following:

Rods, reels, lines, flies, bait hooks, trolling tackle, gaffs, landing net, bait box, float.

Woolen and rubber overcoats, old shoes, rubber leggings, extra boots, slippers, or moccasins.

Hatchet, knife, pistol and cartridges, screw-driver, awl, pliers, gimlet, whetstone, twine, wire, rope, leather straps, tacks, needles, pins, thread, wax, scissors, paper, pencil, rubber.

Compass, matches, fuse, candles, spring balance, cork-screw, pocket pistol, field-glass.

Soap, towels, comb, sponge, looking-glass, goggles, linen and flannel rags and raw cotton, to be used for cuts, wounds, cleaning guns, mending, etc.

Pipes, tobacco, maps, diarrhœa mixture, cathartic pills, salve, court-plaster, ammonia, sweet oil, and a mixture of tar and oil as a preventive against flies and other insects.

One India-rubber bag to hold the "kit" is a desirable addition to an outfit, as it makes a portable package and keeps its contents always dry.

One thing which every hunter should appreciate is comfort in camp, and to be comfortable and happy should be his main business. "Roughing it," is not healthy on account of poor food badly cooked, sleep taken on the bare ground, unnecessary exposure and dirt. Every one should be careful to provide an abundance of good food with proper means for cooking and caring for it conveniently; he should camp in the best attainable place, considering always sanitary laws, just as potent by the way in camp

as anywhere else; and camp too in time to make himself comfortable for the night, when it is daylight, and everything is handy around. Camp "tricks" should be kept in their places, not thrown helter skelter, or left lying where last used, the common opinion that order is opposed to easy comfort and freedom from care, to the contrary notwithstanding.

In sleeping, but little, if any, more bed clothing should be used in camp than in a house; too much cover has given many a city fellow a cold, and disgusted him with sleeping out of doors. He thinks that as he has no roof over his head, he ought have a thousand blankets. In the middle of the night he gets into a perspiration, kicks off the cover, cools suddenly, and the next morning swears in a hoarse whisper that sleeping out of doors is a humbug. No more cover should be used than will keep the body at a natural heat; anything more is bad, even if not enough to cause perceptible perspiration.

In making up your party for a camp, it is of the first importance to include only congenial minds and dispositions. No matter how dear to you your friend is, or how warm his affection may be for you, if your habits of thought and body are not under control, the little things of camp life will be the fruitful causes of unhappiness and discontent. The number of the party has of course to be considered and the style of camp life, whether you do your own work or employ help. One man who shirks, and "the best fellow in the world" is often the man, will interfere sadly with your pleasure. Men incline in camp to couples. Three can seldom agree long, for one is almost of necessity "left out in the cold"

No party should attempt to camp out unless one at least of their number is thoroughly conversant with woodcraft, and able to devise and direct so as to secure the general comfort under all changes of circumstances and vicissitudes of weather. One great essential to thorough enjoyment is an equitable division of labor, and a faithful observance of the duties assigned to each member. This is especially important where no servants are employed. Four persons constitute a large enough party. One should be a fair cook; another should be able to keep the camp supplied with wood and make a fire, which is a task by no means easy; a third should be a fair shot and a good pot-fisherman, for a variety of

food adds much to the charm of camp life ; and the fourth should be apt at building a shelter and pitching a tent, and a good boatman withal. Thus organized, a party is ready to start for the woods.

We cannot too earnestly urge the advantage of taking the various kinds of condensed food which ingenuity has devised, for they not only greatly reduce a load, but add much to the ease and comfort of all, and materially lighten the labors of the cook. Borden's condensed milk, coffee and beef are a great acquisition. A single can of coffee will serve a man for thirty days, and really needs neither milk nor sugar. Put a part of a teaspoonful in hot water, stir it, and your beverage is ready for use. The beef will make a variety of soups, if used according to directions, and the milk is useful in compounding various dishes. The self-leavening flour prepared by Jewell Brothers is another indispensable. It has only to be mixed with cold water or milk, requires no salt, and with slight change in preparation will produce bread, biscuit, cakes, etc., in a very few minutes. The bones and small pieces of meat left after cutting up venison, when boiled to a jelly in the camp kettle, strained, and put away cold, form the ingredients of a very nourishing soup which can be prepared in a few minutes at any time by adding a sufficient quantity of hot water. With a little potato and onion chopped fine, red pepper, salt, and flour, or dried tomatoes, it can be made really delicious.

To carry the camp stuff most easily, back-loads should be so made up that the softest parts should rest upon the shoulders and neck, and when adjusted and supported by a strap that passes across the forehead, boxes and cumbrous articles may be packed on top ; by this method fifty pounds may be carried with comparative ease. Fishing rods, paddles, axes, etc., should be tied together in bundles in two places at least, and when shouldered, boots, kettles, and the like, may be slung over their upper ends. Where a canoe or boat is to be carried, lash the paddles lengthwise one foot apart across the bars or thwarts amidships, turn the canoe upside-down, rest one end upon a convenient projecting branch of a tree at such a height that you can easily pass under, and then thrusting in your head so that the paddles will rest upon the shoulders, raise and balance it, and proceed on the journey. If the canoe is too

heavy for one person, it should be shouldered by two men, one at each end, and carried right side up. There is a knack in walking, too, which should be acquired, namely: always run your eye along the trail at least a rod in advance, so that you may not only see soft places, rocks, roots, and other obstructions, but calculate to a nicety just where your steps are to be made. This practice will prevent stumbling; it also enables one to discern a blind trail easily, and teaches him to observe any strange signs which might otherwise pass unnoticed. If you are thirsty by the wayside, and have no cup handy, bend up a portion of the brim of your felt hat so as to form a cup, and drink out of that. It is better than lying flat on the stomach to drink from a pool or spring, whereby there is real danger of swallowing living creatures that may possibly cause serious difficulty afterwards. A cup may be instantly fashioned by cutting a slit longitudinally in a piece of clean bark; and lapping the divided parts, one over the other, hold them between the thumb and fingers.

Camp sites should be selected for access to wood and water — wood first; but there are many other considerations to take into account, such as shelter, immunity from insects, or proximity to game. A high open knoll away from water is preferable, in fly time, to a location on a river bottom. Sandy beaches or gravelly points are liable to swarm with midges or punkies, and the thicker woods with mosquitoes. Points where a breeze draws up or down a stream are the most desirable. Black flies do not molest between sunset and sunrise. The camp site being chosen, the first duties are to fix the shelter, cut wood, and get the kettle boiling. A letter A tent is the greatest luxury in camping, but in fair weather a tilt or half tent of canvas or blankets, or a "rough slant" of bark or boughs laid on poles supported by crotches, are comfortable enough when a good fire is kept up. Or, for the matter of a night, a screen of spruce boughs to windward, or the canoe turned over to protect the chest and shoulders, is a good make-shift. The lee of a protecting ledge, with a bush screen, is a dry and comfortable camp. A permanent shanty is made with sides four logs high and a peaked roof of poles covered with bark or split shingles four feet long, with a hole at the top for smoke. In this way also a conical wigwam can be constructed, Indian fashion. Make the bed of

evergreen boughs—balsam and hemlock are the softest—place them in layers with the buts all one way, and shingle the buts of the first row with the tops of the second, and so on successively. Fires are made in various ways. For a good cooking fire, a back should be made three logs high, supported against upright stakes driven into the ground; two logs at right angles, or two stones placed in front to lay fuel on, will raise the latter from the ground sufficiently for a good draft. Another mode is to lay two eight-inch logs on skids, say two feet apart and parallel, filling in the space with small fuel. The Indian fashion is to lay the sticks in a circle, with the buts in the centre, resting on one another making a conical pile. A tree should be felled, the trunk cut into logs, and the branches being chopped up for fuel. In almost all woods are logs, some time cut and seasoned that furnish dry fuel and kindlings. To peel bark, girdle the tree at intervals of two or more feet and split the sections with an axe longitudinally. In fly time, when the air is still, make the camp fire so that the smoke will blow into the tent or shanty, in order to drive out the flies; but at all times, and especially at night, guard against changes of wind and flying sparks.* Clean greasy plates with moss and scour them with sand. To clean knives and forks, simply thrust them two or three times into the ground. At night, tuck your trowsers into your woolen socks, and tie them at the ankles. Never sleep with

* *To make Fire from Dry Wood without Matches.*—Get a round spindle of dry hard wood, oak for example, about a foot long and a quarter of an inch in diameter; polish it smooth, and round off one end. Then get a dry piece of some soft pithy wood, elder will do; if over half an inch in diameter split it: if less shave the wood on one side down to the pith, making a flat surface; make a small bow of any springy wood or root, string it: buckskin is the best string; get your kindling wood all ready for your fire, together with some small dry splinters, grass or leaves, or punk is best of all; hold the soft wood, flat side up, firmly between your knees; take a turn with your bow string about the middle of the hard wood spindle; set the rounded end of the spindle in a little trench you will make in the soft wood or pith; press down with any flat piece of wood held in the left hand, on the other end of the spindle; work the bow back and forth, and the spindle will revolve rapidly. In a little while the dust worn from the soft wood will fill the little trench, smoke, and take fire. If punk is used, this spark will ignite it by bringing them in contact; if grass, as soon as the spark is well developed envelope it in dry grass and wave rapidly back and forth until the fire is well set or breaks into flame. An Indian expert in this method will get fire in about a minute, more or less, as his material happens to be in condition, and will make it nearly as soon using both hands, in place of the bow to revolve the spindle.

boots on. Use moccasins if you have them. Keep your feet to the fire, but don't let them burn. See that there is a sufficient supply of fuel for the night, and learn to wake at proper intervals to replenish the fire. Early mornings are always cold at any season of the year. A compound of tar and sweet oil applied to the face and hands is the best protection against gnats and flies. Buckskin gloves may be worn without discomfort at night. When an A tent is used, a cord drawn through the apex with its ends stretched to convenient trees, supports it better than two crotches and a ridge-pole, and will prevent its being blown down by a gust of wind. The sides should be drawn down tight and fastened to the ground. Never sit up after nine o'clock at night, and rise at daylight in the morning. Never omit a good wash, at least of the face and hands.

Every hunter should know the edible roots, berries, and salad plants of the country he hunts in. The number, especially of edible and wholesome "weeds" which can be boiled as greens, is astonishing. He should also know the herbs from which to make teas for sickness, and poultices and dressings for wounds and bruises. None of the ills which a hunter as such is heir to, are beyond the reach of nature's remedies. If he don't know the medicines of the field and forest, he should take to camp a few of the simplest of the apothecary's sort.

One great point gained in learning woodcraft is to acquire a habit of close and continued observation. All dense woods look so much alike that the novice without a guide is almost helpless. In travelling it is important to turn frequently and survey the ground behind, especially if one intends to retrace his steps. A locality looks entirely different from different points of observation. Hence it is always prudent to blaze the route by occasionally scoring a tree or breaking the top of a bush or limb. Where small spruces are frequent, the broken tops of these are most easily seen. In passing through alder brush, cut them well down toward the buts with a hatchet, remembering to bend them well over with the left hand and giving a smart clip on the bend. A greenhorn will be surprised to see how easy it is to cut brush in this way, and how much hacking is required to cut even the smallest sapling in any other way. Alder brush makes a good "blaze," as the under sides of the leaves are much lighter than

the upper, and show distinctly. In following a blind trail, the eye should always run casually in advance. If it is cast down directly in front, the sign is lost; but if raised, the trail can usually be traced quite distinctly. In all cases where a man discovers himself lost, he should stop short and carefully consider the situation —the position of the sun, direction of the wind, character of adjacent prominent objects, etc., and then retrace his steps as nearly as possible. It is senseless to plunge headlong into trackless uncertainty, when it may be quite possible to go back on one's own track to the point started from, which, though a loss of time in reaching a desired destination, is better than a loss of way and an involuntary bivouac in the woods. The writer remembers having once tracked back through a laurel brake with such nicety of calculation as to pick up a handkerchief which had been pulled out of his pocket, and was clinging to a bush. As a general thing, a man does not go far off his course before he discovers his mistake. A quarter of a mile in a jungle or a strange forest seems a great distance. It is not impracticable either, when one is in doubt to climb a tall tree and take a survey from the top. Caribou hunters often adopt this practice when looking for barrens where game are likely to be found. Rivers and streams are certain highways to deliverance provided a person has previously some idea of the general lay of the land.

One never should be without a compass; though in some persons animal magnetism is so strong that they determine the cardinal points instinctively. Indeed there are individuals who cannot sleep with their heads to the south, but instantly detect a bed so placed. Backwoodsmen acquire by practice and careful observation a certain craft in reading signs which is almost infallible. As a rule, but not always, moss grows more densely on the north side of trees, nature providing against the cold that comes from that quarter. But a more reliable sign is the limbs of trees, which grow longest on the south side, those on the north side being exposed to the wintry blasts which twist, scathe and stunt them. A laurel swamp is the worst conceivable place in which to get lost. The tendency to travel in circles is well known. It is a physiological freak not easily explained. In an article on this subject which we clipped from the *Scientific American* fifteen years ago, the writer, who is a Texan, says:

"Bewildered persons frequently travel in a perfect circle, sometimes keeping the same track until they have made half a dozen equal rounds; at other times making the circle larger or smaller each time. It is not, by any means, always the case, when a person is lost; but it is so frequent that it is within the experience of every one who has been much in the woods. In calm and cloudy weather in a country of much sameness of appearance, the best woodsmen get so bewildered as to "take the circles." Persons not accustomed to the woods will sometimes do so, when the sun is shining and a steady breeze blowing. On the level or gulf prairies of this country on a calm, foggy morning, no man can travel without a road. It is an incident of every day occurrence in the spring and fall seasons, that men are thus becalmed on the prairie as effectually as men are at sea; nor will a compass mend the matter, for it cannot be carried steadily enough to keep its meridian, and the course it points cannot be kept for fifty yards; if a man attempts it he will make a circle and come back to the place he started from. The circle will be large or small generally in proportion to the density of the fog—sometimes only a hundred yards in diameter; at other times a mile, but seldom more. The circles thus made are perfect. This kind of wandering seems to arise from an attempt to go a straight course when there is nothing to guide the senses, or when the usual guides of sun, wind, or the general contour of the country are disregarded. It rarely befalls children, who do not attempt to get on a *course*, but only run from one visible point to another equally perceptible.

"Many apparently trivial traits in the disposition of animals, which are of great use to woodsmen are omitted in books of natural history; chiefly from ignorance no doubt. One of these is the disposition of the horse, when frightened, to run *against the wind*, if any is blowing. Thousands of horses which would be otherwise irrecoverably lost annually on this frontier, are recovered by observing this simple rule in pursuit. All animals have similar inexplicable traits in their disposition; and men are no exception to the rule. White men, when they are scared, will retreat *in the same direction in which they came*. The Indians know this, and lay their plans accordingly; and many a gallant company has been cut to pieces simply from ignorance of this fact. But those who understand these matters, when they find it necessary to make a hasty retreat, always do so in a straight line, and in a direction different from the one in which they came.

"We frequently see notices in Northern papers of children being lost. Such things rarely occur on this frontier; though children often wander, and there are but few neighbors to help to search for them. Perhaps the cause of humanity might be subserved by publishing a few rules to be observed in such searches. Any child will make a track or trail plain enough to be followed by the

eye over any ground, unless there be much passing of men or animals to spoil the trail; and it can be followed by almost any person of good sight, although he may not have had any previous experience. Go to the place where the child was last seen and look for the trail, glancing along the ground with a sharp scanning look; when it is found, a faint kind of a line will be seen, which may be followed at a fast walk until a well-defined track occurs. If the trailer stops to look for a track he will probably lose the trail, and must go back and take it up again with the same scanning glance along the ground. The trails which hunters and Indians follow skilfully, is not so much composed of tracks or foot-prints, as of indescribable little signs, such as leaves and blades of grass bent or turned, twigs broken, and other things so small and faint that they cannot be shown to any one, yet which, when all put together, make a kind of *line* along the ground, which line can be seen by a rapid glancing look, but which will disappear when looked at steadily. The trail of a human being is more easily followed than that of any other creature, because there is a kind of *purpose* in it different from the trail of irrational animals. A child will change its course around every thick clump of bushes, and go nearly straight when the ground is open. If it is scared and running, it will run *from* the wind, if much is blowing, and from any voice it hears; in such cases, therefore, it is not good policy to call much upon the lost child's name."

HINTS FOR SOUTHERN TRAVEL.

In preparing for a winter's campaign in Florida, one should take with him, if practiacble, a tent and small boat. If they can be shipped by sailing vessel two weeks in advance of his sailing, they will reach Jacksonville in season for use and at little cost. If sent by steamer the charge for freight will be enormous. A shot gun, rifle, ammunition, and fishing tackle should be taken from the north. The tent should be as light as possible and so constructed that all the room can be utilized. The boat should be small, flat-bottomed and light. A large sail boat can be hired in Jacksonville at a reasonable price, and a man to sail it and do the cooking. Gun and rifle should be breech-loading, thus securing safety and dispatch in loading. Revolvers and big bowie knives are superfluities. Everybody takes them, and everybody finds them in the way. Wear old clothes; half the pleasure in camping out is to be able to rough it. Don't put on fancy costumes expecting to "make a spread," as no one will appreciate the effort or effect. Wear woolen

clothing at all times. For the feet, take good stout shoes, lacing up tightly about the ankle. A pair of tight (not tight fitting) boots may be very good for a short, wet walk, but for an all day's tramp through swamp and pine woods, shoes are far superior. Two pairs good woolen, and one rubber blanket. For sleeping in camp, in this animated land of fleas, spiders and creeping things so unfortunately taken into the ark, a hammock should be used; one arranged (as it may easily be), with a light canvas roof, with sides of netting. Two or three rafter-shaped triangles hung on a line will spread such a shelter, and in a canvas hammock under it, one can rest free from the companionship of the guides and dogs, and without vivid ideas of snakes and centipedes. Sportsmen are often disabled by the fiercest animal in Florida, the flea. High boots will be some defence, but keep away from the vicinity of domestic animals, and sleep not in any of the "cracker" houses, but camp in remote pine woods and keep the dogs away from the tent. Such forest is comparatively free from mosquitoes, and in mid winter the sand flies are not very annoying. A mosquito bar is indispensable, as many nights the tormenting insects call their own.

If the country on the coast be visited, the "bar" should be made of thin cotton or lawn, to keep out the "sand flies," insects so small as hardly to be discernible, but with a bite like the burn of a hot iron. It would be well to take a little salve and thin plaster for cuts and bruises. In the line of medicine one can take a whole apothecary's shop, if so disposed, but, excepting a little whiskey and quinine, the former for snake bites, which hardly ever occur, and the latter for imaginary fever, no medicine will be needed. For light at night, a lantern and candles will be sufficient, though kerosene, where little transportation is to be made, is preferable. Buy it in New York in five gallon can, boxed. It will always sell for twice its cost. The keen bracing air gives more pungency to a haunch of venison or brace of quail than all the sauces piquante ever concocted. A bunch of Spanish moss is infinitely superior to a napkin, and the clear waters of some spring to the finger-bowl. And here a word as to water.

Nearly all the water in East Florida is impregnated more or less with lime or some mineral or salt that gives it a "flat" taste to

the uninitiated, and a drink of raw unadulterated water is not always acceptable. Some people "qualify" it—indeed the majority of settlers "qualify" it so much that the original taste of the *aqua* is lost in that of the qualifier.—That is all—a word to the wise. We advise a plain mode of living. Take hard bread, "self-raising flour," pork, salt, potatoes, brown sugar, rice or hominy, Borden's condensed milk and coffee, a little jelly for venison, butter, pepper and mustard. Venison, fish and game birds may be on the bill of fare every day, but again they may not. No one should start down the river depending upon a supply, as the game is regulated and controlled by a multitude of laws that the visitor knows nothing about. Preserved fruits, meats, etc., are not necessary, though sometimes found acceptable—they don't stay in camp long. Regarding cooking utensils, if cooking is to be done in the usual way over an open fire, they should be a "bake kettle" or oven, a foot diameter; frying-pan, same dimensions, with a long handle; tin plates, plated knives and forks, pint tea-cups, iron or tin spoons, and butcher knife. A regular camp kit is preferable, however. If a stove is preferred, go to the tin-smith's and have him make a sheet-iron box, two feet long, one broad, open at one end. The door a sheet of iron, to slide in a groove, perpendicularly, acting as draught regulator. The legs should be flat, fastened to the box by hinges, shutting under it when packed. The pipe small and in joints, to be packed in the stove. A piece of tin should be taken to fasten to the tent to run the pipe through. With such a stove, well supplied with "light wood" or pitch pine, a fire can be sustained that will vacate the tent in short metre.

ROCKY MOUNTAIN TRAVEL.

Special preparation is required for travel in the Rocky Mountains. Before entering the mountains one should prepare himself and party for the country they are about to visit, for if their outfit is not carefully selected, what might have been a summer's pleasure will very likely be one of toil and regret. Take nothing but what is absolutely needed, and what is taken let it be as light as possible, as every extra pound lacerates the back of the pack mule. Use medium sized animals for packing, as they will carry as heavy a

pack as a larger animal in rough places, and are more to be relied upon where there are steep ascents to be made or fallen timber to be crossed. Two hundred pounds is enough for a single pack mule to carry at once, but some persons will overload their animals to save buying an extra mule, and will not see their folly until they have lost some of their best animals by rolling down hill sides against the rocks, or by having them "snagged" in fallen timber. When returning at the end of the season, if the animals' backs are sound and good from the effects of light loading, they will command a good price and are easily disposed of; but if on the contrary, their backs are covered with sores, they will only bring one-half their original value, so men may easily see the economy of having a sufficient number of animals to carry their luggage.

For riding animals use mules for the mountains and horses for the "plains." A good mule will follow a trail and take its rider into camp the darkest night that ever was. Should you get strayed away from camp and not be able to find your way back again, drop the bridle rein on the horn of your saddle and trust to the instinct of your mule, and if it is not very hungry, after wandering about a short time it will take a direct course for camp, although the rider may think camp is in an opposite direction from the one where the mule is taking him. The common Indian pony or bronco is the best horse to use on the plains, as they are tough, quick and thoroughly acclimated to cold weather and the poor feed that is to be had in most places. Select an easy saddle with a good California tree, a light pair of spurs, and a broad hair Cincho bridle with a light curb bit, a good saddle blanket, a small pair of saddle bags, and your riding outfit is complete, unless you ride a mule, and in such a case a good strong broad crouper is necessary, so it will not cut the tail of your riding animal. When travelling do not hurry your horse, or do not allow him to become lazy; keep him at a steady gait, and if necessary, he will accomplish a long distance daily; but should you become impatient and lope him nearly all day, he will become poor, stubborn and lazy. Use the Spanish arrapahoe instead of the pack saddle, as it is easier packed and more comfortable for the animal wearing it. Select heavy lash ropes, or they will stretch, and the animals will have to be repacked a dozen times a day, particularly after a rain, when the ropes have

been wet and are gradually drying by the heat of the sun. Have a long "lariat" for each animal, for in some places in a timbered country it will be necessary to picket them over night, for if they were turned loose they would stray through the woods in search of better feed, and it would be a severe task to collect them together again. Put a cow bell on the neck of the gentlest mare, and the whole herd will become attached to the animal wearing the bell; and when travelling let the "Bell mare" take the lead, and the other animals will follow in single file where it would be impossible to drive them. The cooking utensils should be several camp kettles made of copper and lined with tin, (made to fit in each other so they may be more easily packed,) a small Dutch oven, spade, axe, hatchet, coffee mill, knives, forks, spoons, tin plates and cups, a bread pan, frying pan, gridiron, whetstone, and two small iron bars to lay over the fire to set kettles on when cooking.

The bedding for each person should consist of four California blankets, a small pillow, a rubber poncho, buffalo robe, and half a wagon cover of canvas to cover the whole bed and protect it from the rain. If tents are used, the small dog tent is the best, and will be found very useful as a wrapper to roll the bedding in for packing. For hunting large game, use the Gove rifle, of Denver, or the Sharps from Hartford. There should always be one good double-barreled shot gun in a party for the smaller game, and thus provided for, there is always an abundance of fresh meat to be had, which is a great addition and saving to the table. When a party is preparing to camp out it is a good plan to establish a depot camp for a few days near some town, (where there is good water and wood,) while fitting out, and become accustomed to camp life before striking out for the more wild portions of the country. The experience thus gained proves a good guide for future operations. When starting out for a distant point, do not travel too far the first few days, but make short marches until the animals' backs become hardened to the arrapahoe. Do not allow the arrapahoe or pack to become loose, but have them as tight as two men can draw them. A mule may grunt a little about being laced so tightly, but it is much better for them than to have a pack rocking from side to side, backward and forward, thus bruising the mule's back and ending in sores and a worthless animal. In the saddle bags always carry a pound or two of good,

solid, square crackers, "hard tack," if need be, soda crackers, if obtainable at the last little village through which he passes, and in his coat pocket, securely wrapped, an ounce of salt and a half ounce of ground pepper. Properly packed, the crackers need take but little room, and the man is to be pitied, no matter how fashionable his stomach, who cannot, after a good day's ride, make a satisfactory, and certainly digestible, supper off the crackers crumbed in the good sweet milk he is sure to find at any settler's cabin, especially when duly seasoned with the salt and pepper he carries with him. Persons of limited or no experience in the West may smile at the suggestion that salt and pepper be carried along; but the writer has found many families, rich in acres and herds, who were "just out of salt," and to whom pepper had been so long absent that it was a cool friend. And many a palatable supper and breakfast has he made off crackers and milk with pepper in it, duly salted, when, had want of foresight confined him to the "corn dodger," made all too "short" with lard, and the bacon swimming in its native grease, which served the more rugged stomach of his host, he would but weakly have bestridden his mustang for the next day's ride.

Guard against the "mountain fever," which is a severe cold peculiar to the Rocky Mountains, caused by exposure and over exertion. Its symptoms are flushes, fever, cold in the head, headaches and general debility. It reduces a cast-iron mountain man to a weak and helpless infant in a few days. It in no respect resembles the fever and ague, or the fever prevalent to the Southern States.

To prevent snow-blindness, smear the nose and the parts of the face around the eyes with damp gunpowder. Those who travel to the mountains by railroad should get a canteen at Omaha and fill it with milk, and suspend it on the outside of the car window by means of a stick (laid crosswise) and a string. It will keep sweet until you wish to replenish. By this means you avoid the alkali water which is injurious, especially to children. Hang your lunch basket in the same way, and you can keep roast turkey, chicken, game, meat, etc., the entire distance. You want two or more coffee cups with handles, as you do not always feel like eating breakfast at the stations, and ten cents worth of coffee procured at the counter will suffice in aiding the lunch basket.

INSTRUCTION IN TAXIDERMY.

BACKWOODS TAXIDERMY.

With a slight knowledge of taxidermy, the hunter can prepare and preserve hard earned trophies of the chase. The following tools and materials are all that are absolutely needed:

A heavy and light scalpel, or good pocket knife, scissors, needles and thread, cotton wadding, or any soft material if not obtainable; arsenic, alum, saltpetre, carbolic acid, paper for wrappers, and a little bran, meal, or fine sawdust to use when skinning.

To make a Bird into a Skin.—Lay the bird on its back and make a longitudinal cut from the breast bone to the vent. Push the body away from the skin with the knife, holding the skin firmly between the fingers and thumb of the left hand, and avoid cutting as much as possible. When the skin has been removed far enough to expose the shins, unjoint them at the knee, and cut through the flesh until the skin is laid bare. Skin down to the vent and cut off the extremity of the body which holds the tail feathers, and remove the skin to the wings, unjointing them and skinning to below the eyes. Cut the neck off close to the head, and remove the triangular, lower part of the skull, and the brains. Take out the eyes, and cut away all superfluous flesh from the skull, leg, and wing bones and unjoint the main bone of the wing from the double bones or fore-arm.

(In skinning large birds, break the wings close to the body at the commencement, as it will facilitate the handling, and skinning.)

Pass a thread through the wing bones and draw them nearly together, tying them in position. Cram the eye holes full of cotton, wrap the leg bones with the same, and draw them back in natural position. Dust the whole flesh side of the skin freely with dry arsenic, and return the skin. Should the neck become stretched, and difficult to return, soap it, and it will slip over the head easily. Smooth the plumage, fill out the body, sew up the skin, cross the legs and tie them, and wrap the skin closely in sheet cotton, or thin paper. A skin thus prepared will keep for fifty years or more, and can be naturally mounted at any time.

Mounting Birds with closed wings.—Lay the specimen on its back and fill the throat with cotton to keep the saliva from soiling the plumage. If the bird is a large one, such as a hawk, owl, raven, gull, etc., it should have the nostrils crowded full of cotton to prevent similar disastrous effects. If a bird is bloody, wash the soiled parts in cold water and dry the feathers as much as possible with a dry rag or sponge, and cover them with calcined plaster, which can be had in any paint store, rubbing it lightly into the plumage until the feathers are dry and assume their natural appearance. To remove the plaster from the feathers beat the bird vigorously with the wing of a bird or fowl. When cleaned, lay the bird on its back and make a longitudinal cut from the breast bone to the vent. Push

the body away from the skin with a scalpel, holding the latter firmly between the fingers and thumb of the left hand, and avoid cutting as much as possible. When the skin has been removed far enough to expose the shins, unjoint them at the knee, and cut through the fleshy part of the knee until the skin is laid bare. Skin down to the vent and cut off the extremity of the body which holds the tail feathers, and remove the skin to the wings. Unjoint the wings and skin to below the eyes. Cut the neck off close to the skull and remove the under part of the skull, and from the hole thus made take out the brains. Remove the eyes and all superfluous flesh from the skull, leg, and wing bones, and sever the main bone of the wing from the double bones or fore-arm. In skinning large birds breaking the wings close to the body before removing it will facilitate the skinning. Roll up a small ball of tow and crowd it tightly into the skull. Point a piece of wire at both ends by filing, and twist the tow around it the length and size of the natural neck, commencing an inch or two inches from one end, according to the size of the bird to be mounted. Pass the short end of the wire up through the tow in the head and occipital bone (hind part of skull), and clinch it firmly by repassing the end of the wire through the fore part of the skull, and fasten it through the eye hole with a pair of pliers. Fill the eyes out to nearly their natural size with soft putty, and dust the whole fleshy side of the skin with dry arsenic, best applied with the hind feet of a rabbit or hare. Between the wings, and on the shoulders of the bird, are two yellowish lines, where the feathers are inclined to protrude through the skin. These lines should be caught up with a needle and drawn nearly together and tied in position. In a skin of a bird of the size of a red-tailed hawk, they should be (when tied) an inch and a half apart. Other bird skins should be drawn up in proportion to their size. Return the leg bones in position, and also the skin, by passing the head through the neck. Pick out the eye lids in their usual form with a needle or pincers, and arrange the plumage smoothly. Make a body *the size of the original one* by rolling up a bunch of excelsior, or sea grass, and winding it into form with twine or thread. Pass the neck wire through the body lengthwise, pull the skin carefully over the body, and clinch the protruding neck wire firmly. Never use soft bodies, as they will not hold wire sufficiently tight to keep a bird in position. Wire the legs by putting pointed wires through them from the centre of the feet. Fasten the leg bones to the wires by wrapping them with tow, making the legs a little smaller than they naturally are, and slip the wire further through the legs and let them pass obliquely through the body from the side to the fore breast. Clinch the leg wires firmly into the body, straighten the legs parallel with the sides of the body, and sew up the hole in the skin. Smooth down the plumage, bend in any natural position, and mount on a stand. Fill the throat out slightly with cotton or tow, and apply a little mucilage to the inside of the eye lids. Press the eyes tightly in position, and pick out the eye lids over the eyes as required with the point of a needle. Fasten the bill together by passing a needle and thread through the nostrils and base of under mandible and tie in position. To wire the tail is one of the most delicate tasks for the tyro, and should be done as follows:—Pass a long pointed piece of small wire through each tail feather, at the flat part of the quill near the body, and spread the tail as desired. Another large wire should be run through the fleshy part of the skin (at the base of the tail) into the body from the under side of the tail, thus fastening it in any position wanted. Fasten the wings by sticking a sharp piece of wire through the shoulder of the wing into the body. Stick small pieces of wire in different parts of the body, and

wind the bird tightly with fine thread, thus holding the plumage in position until dry. The plumage may be made to lie smoother by touching the rough places with a feather wet in turpentine. When collecting, one should note the color of the eyes, legs, cere, gullar sack, etc., of birds when first killed, as it may be naturally reproduced by paint when the birds are mounted and dry.

To Preserve Birds Temporarily.—Birds can be preserved for a few days during hot weather as follows: If a large bird is killed, first swab out the blood from the throat if necessary, and distribute powdered alum and saltpetre (one part saltpetre, six parts alum) the entire length of the throat, and push some of it into the crop with a stick; rub a little of the preservative into and around the eyes externally; draw the entrails from the specimen through a small hole, made longitudinally into the vent, and prime the inside of the bird with the powder; put a small piece of cotton down the throat, and cram the nostrils full of the same material, to prevent the saliva and blood from coming out on to the plumage. Carbolic acid is also a good disinfectant and preservative. Take a small bottle of water and put a teaspoonful of acid into it, and apply the mixture to the most perishable parts of a specimen in the same manner as directed to use the saltpetre and alum. Pieces of cotton or tow, wet with the acid and water, should be placed in the vent and throat of the bird. Should one wish to keep any hard feathered birds, such as loons, grebes, auks, guillemots, gulls, ducks, etc., they should be drawn and thrown into a pickle of saltpetre and alum, and any good taxidermist can mount and clean them when desired.

To Prepare a Buck's Head.—To preserve a buck's head, make a cut across the head from the middle of one horn across the skull to the middle of the other antler; then make a cut from the middle of the incision made down the back of the neck to the shoulders; cut the skin around and a little below the neck until it is free from the fore shoulders, and continue to skin the neck up to the base of the antlers; cut the skin carefully away from around the horns, and skin down over the muzzle; skin the ears part way down, trim away the flesh from the skin, and rub the whole fleshy side of it with the powdered alum and saltpetre, and if no other preservative is at hand use salt. Turn the fleshy side of the pelt to the open air, and dry as soon as possible. The skin will shrivel up to the dimensions of an old boot leg, which it resembles in shape, but nevertheless it will be in good condition. Chop away the part of the skull to which the horns are attached, enlarge the hole in the occipital bone, remove the brains, dust what remains of the skull with any preservative, and hang the horns in a convenient crotch of a tree until the camp is deserted.

Never cut a deer skin down the front of the neck, unless you want an ugly looking seam to mar the beauty of a head. Should a deer be wounded or killed, it is not necessary to cut his head nearly off to bleed him, and if a deer is shot through the lungs or near the heart, it does not need bleeding, as the blood will settle in the thorax and can easily be turned out when the animal is dressed. What looks worse than a deer with his head nearly cut off, and its coat covered with blood, which will become half putrid in a few days in mild weather, unless it is washed off from the hair when fresh? Never wash out a deer after dressing it unless you are desirous of spoiling your venison When saving saddles, let them cool and stiffen before folding the skin over them. So do not mangle your game and spoil your skins and meat by slashing animals to pieces with a huge butcher knife.

Skinning Small Quadrupeds.—Begin by making a longitudinal incision be-

tween the hind legs, extending quite back to the vent, the hair having been carefully parted so that it may not be cut. Do not cut into the abdominal cavity. The skin can now be separated from the flesh and turned back as far as the thigh, which is severed at the joint. When this is done on both sides, the gut should be drawn out and severed at a short distance from the vent. The tail should also be disjointed at the root. This being done, the skin can be loosened around the body until the fore legs are reached, when they also should be dissevered. The skinning now proceeds along the neck until the skull is reached. Here considerable care is necessary to remove the skin without damage to the ears, eyelids, and lips. The skin is left attached to the skull; when the operation has proceeded far enough to expose the muscles of the jaws, the skin must be separated from the body at the first joint of the neck. The tongue, eyes, and muscles, remaining attached to the head, are now to be carefully removed, and the brain taken out from an opening in the back of the skull, cut through for that purpose. To make this opening, amateurs can use a small gimlet or bit with very small animals, and a large one as circumstances may demand. The legs are now to be skinned out quite down to the claws, which completes the operation of skinning. During the entire process, all fluids escaping must be immediately soaked up with cotton. As soon as the skin is removed, it should be thoroughly rubbed with arsenical soap, not omitting the inside of the skull and mouth cavities.

Insect Specimens.—To preserve insects; quarter of an ounce of corrosive sublimate in one ounce of water, and add three ounces of spirits of wine. Steep insects in this, then dry; and especially if spider specimens be treated this way, they will be found to be pliable.

Bird Lime.—To make it, boil down linseed oil of the best quality until it becomes thick and glutinous. It should be boiled in an earthern pot in the open air, for about two or three hours. It is very essential that an earthen vessel should be used, as an iron one heats and the oil takes fire when boiling, and in such a case is useless as bird lime. A pot should be used with a tight fitting cover, to prevent the fire entering inside it. When prepared set the oil away in tin boxes with tight fitting covers, until it is to be used. Prepared lime made of pitch and oil and sold by some dealers, is worthless.

To Use It.—Select some small dry sticks, about eight inches long and as thick as a straw; sharpen one end of them to a flat thin edge, so they can be stuck into a cut in stake; take a large stick or stake and drive it in the ground; make cuts in its sides suitable to receive the flat ends of the stick; take two of the small sticks and dip them in the lime; when covered, hold one in each hand and roll them between your thumbs and fingers with their sides touching, thus equally distributing the lime; insert their ends loosely into the notches in the ground, and place a "call bird" in a conspicuous place near the stake; when the birds alight in the sticks they pull loose from the main stick, and when flying away the wings come in contact with the lime, and are pinioned to the bird's sides. It does not hold them by the feet, as is generally supposed.

To Tan Skins of Animals with the Fur on.—1. Put them into a pickle of alum and saltpetre until they become like leather; then dress the flesh sides, dry them slowly, and rub them with a little butter, and dry them by rubbing or treading them out in veneer sawdust.

2. Take soft water, about ten gallons, a half bushel wheat bran, seven pounds of salt, two and a half pounds of sulphuric acid. Dissolve all together and put the skins in the solution and allow them to remain twelve hours; take them out and

clean them well, and again immerse twelve more hours, or longer, if necessary. The skins may then be taken out, well washed and dried. They can be beaten soft, if desired.

3. Take equal parts salt, alum, and Glauber salts, and half a pint saltpetre; pulverize and mix. Handle the skins and rub the mixture in well three or four times a day, the oftener the better. If there is not sufficient moisture in the skin to dissolve the salts put a little water into the latter. We are assured that no moth will ever attack furs, the pelts of which have been thus prepared.

4. Mix the proportion of six pounds of alum, and three of salt. Dissolve both in about a gallon of warm water. Use when cool. Place skins not too tightly packed, in a barrel or keg, and pour in mixture. Skins without injury to hair may be kept any length of time in this way, and all in good order at any time to stuff.

5. Take two parts of saltpetre and one of alum, pulverize them well together; spread the skin carefully, fur side down, before it has dried; apply the mixtures evenly, being careful to touch every part in sufficient quantity to thoroughly wet the surface after it dissolves; double the flesh side and roll it up closely; put it in a cool place, out of the way of the frost, and let it remain three or four days or more according to thickness; then unroll, and when it gets nearly dry, with a dull knife remove the fat that may adhere in spots, and a little rubbing makes it pliable and fit for use.

6. Glauber salts, two pounds; rock salt, one pound; alum, two pounds; all to be dissolved in boiling water; leave skins in about ten days, take them out occasionally for a little while during that time; cut the edge of the skin to see if the tanning has gone through; then take them in the hand and beat them over a round stick or block until they are soft. They are to be beaten with the hair side in.

Indian Tanned Skins.—The skin is stretched either on the ground or on poles, and all fat or flesh removed. When well dried it is washed in soap and water to cleanse the fur; the brains of any animal are then taken and mashed into a paste with hot water, and this paste is thoroughly rubbed into the flesh side, and the skin hung out to dry. When dry it is scraped, and exposed to the dew for one night, and next morning rubbed and pulled until soft.

Buckskins are made by rubbing off the hair with a horse-rib, while the skin is fresh, or, after soaking in a weak lye; then dressing with brains, and staining a reddish color in a decoction of Wasatchie bark. Alum and salt are very good, but alum is rather scarce in the chapparal, as also are doors and boards. Some stretch skins on the ground.

Care should be taken, by the way, not to use too much salt, as it causes the skin afterward to absorb moisture too readily. Smoking a skin is done by first dressing with brains, sewing it up into a funnel-shape, and suspending over a slow fire of buffalo chips, or dry prickly pear, built in a hole in the ground. The tips of the funnel being pinned down close around the hole; a clear, calm day, is selected, and the smoking requires about two hours. It gives a velvet-like finish, and the skin never shrinks or gets stiff from wetting, but washes like cloth.

To Keep Moths from Skins.—Dissolve a small piece of corrosive sublimate in alcohol, and brush on; or the best arsenic dissolved in the same manner will answer.

To Preserve Fish for Specimens.—Specimens, which, after being taken, should be wrapped in a damp cloth or moss until opportunity offered for placing them in weak spirits of whisky or alcohol, when they should be allowed to soak until the

spirit has thoroughly permeated the fish, which requires several days, more or less, the length of time required being governed considerably by the weather. They should then be carefully spread on a platter and covered with alcohol until the fish is hardened, when it can be placed in the jar.

To Preserve Fish Skins.—Skin your fish carefully, but do not be particular as to leaving a little meat on. Spread the skins in layers and sprinkle with salt and alum; or make a pickle in a small keg of a weak solution of carbolic acid; any remaining flesh can be scraped off afterwards, and the fish set up by a taxidermist. Many of the most delicate fishes with large scales will not stand the above treatment, to say nothing of mounting them afterward

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A SPORTSMAN'S DIRECTORY

TO THE

PRINCIPAL RESORTS FOR GAME AND FISH IN NORTH AMERICA.

ALABAMA.

This State has a population of 997,000. It may be said to be divided into three parts like its neighbor Georgia, namely, into the low country, the midland or pine wood country, and the upper or hill country. In the lower part, on the coast, sea fowl are abundant in winter, and the salt water fishing is good. There are many canebrakes and wilderness tracts which abound in wild game of all kinds, panthers, bears, deer, and the like. In the piney woods and mountain districts, the game includes many northern varieties. The State is sparsely settled in many parts, and the game is very abundant. By taking one of the railroads or rivers which traverse the States like arteries, the sportsman can find access tolerably easy to excellent hunting districts. The fishing, except for black bass, or "chub," is indifferent.

Baldwin County—

Fish River and Berwick's Bay. From Mobile take one of the little steamers, which ply regularly, twice daily between the city and all points on the bay, to Battle's Wharf, and drive thence nine miles to the ferry on Fish River. Here will be found every convenience in the way of boats, and the angler can enjoy the advantages of both fresh and salt water fishing. In the river and its numerous tributary creeks and branches are multitudes of perch, and a species of bass, called by the natives fresh-water trout.

The bay is only a mile below the mill, and in its waters are salt-water trout, red-fish, croakers, sheepshead, and mullets by the myriad. These latter cannot be caught with a hook, but are easily caught with nets, and are used for bait. Minnows are not to be had, and cut mullet is used almost exclusively.

Berwick's Bay, or Wick's Bay as it is called, is a lake-like expansion of Fish River, where it forms an elliptical basin some three miles long and two miles broad before its *emboucher* into Mobile Bay. Where its waters mingle with those of the bay, it is not more than two hundred yards wide, and at this place is a bar, which is a fine place for seining. The fishing in the bay is at times very exciting, and at all seasons, plenty of game and edible fish reward the angler's care. The gars do not annoy one quite as much here as in the river.

Fish River, which empties into Berwick's Bay, twenty-five miles from Mobile, is a favorite fishing ground for red-fish, croakers, trout, mullet, etc. Captain Vemyes owns a large saw-mill on the river, and will entertain. Reached by sail-boat or steam-tug from Mobile. Country flat.

Bullock County—

A large part of the county is covered by extensive pine forests which are full of game. The Montgomery and Eufaula, and the Mobile and Girard Railroads, intersect at Union Springs, where hotel accommodations may be found, and from which the game centres are accessible.

Cherokee County—

Stevenall, on the Selma, Rome and Dalton Railroad, and *Centre*, reached from Greenwood on the Alabama and Chattanooga Railroad, are initial points for sport in this county. Bears, deer, wild turkeys, quail, and other game are abundant. The country is mountainous, and partly covered with pine forests.

Choctaw County—

Lies between the Tombigbee River and the Mississippi line. The county town is Butler, which lies a little to the north and east of the centre of the county. The nearest railroad and telegraph station is at York, Sumter County, distant thirty-eight miles. There are several other towns of very moderate size in Choctaw County, the principal of which are Bladen Springs, Mount Sterling, and Tompkinsville.

The game consists of deer, bears, an occasional wild-cat, or catamount—raccoons, opossums, rabbits, squirrels, wild turkeys, ducks, quail (partridge), geese, snipe, woodcock, and many others. Deer and turkeys are particularly abundant, and with but little trouble one can have rare sport.

There are several small lakes throughout the county, and these are full of fish. The river contains many varieties in abundance, including the white, or channel cat, and the buffalo.

The hunting grounds are very uneven, broken and hilly.

The routes most favorable for getting into this country are, from the North and East, *via* Montgomery, where you take the Western Alabama Railroad to Selma; thence the Alabama Central to Demopolis, or, if the boat be not there, to York, where a team can be hired to Butler. If the boat be at Demopolis, stop there, and go down the river (Tombigbee) to Tuskohoma, where a conveyance can be procured for Mount Sterling or Butler, the former distant four, and the latter eight miles.

From the west go to Meridian, Mississippi, forty miles from Butler, and take the cars thence to York, or hire a carriage to Butler.

The most pleasant way is from the South. Go to Mobile, and there take the boat to Bladen Springs Landing (Bladen itself is four miles from the river; conveyance thither can always be procured from Mr. Heron, who keeps the landing), or go on to Tuskohoma Landing, as before. At Tuskohoma, Mr. Henry Gaines, the proprietor, will give every information and afford every facility to the visitor.

If you stop at Bladen, Mr. James T. Staples will show the sportsman plenty of game, and take pleasure in making his stay agreeable.

At Bladen there is a hotel. If the visitor goes to Butler he will have to depend upon the kindness of the people. There are some who keep what is called a "house of entertainment," where the traveler can obtain food and lodging. But with the exception of Mr. Spangenberg, no one entertains except during court. After a few days the sportsman will probably be taken in hand by the members of the Hound Dog Club, all of whom will take pleasure in making the stranger comfortable. The country is very uneven, broken by steep ridges and hills.

Clarke County—

By taking boat to any one of the river towns on the Tombigbee or Alabama River and then striking inland, the sportsman cannot fail of finding game in abundance. Deer, bears, wild-cats, raccoons, opossums, turkeys, ducks, geese, snipe, woodcock, rabbits and squirrels will be found in more or less abundance with white, channel, cat, and buffalo fish in the rivers and their tributary streams.

Colbert County—

South Florence, on the Memphis and Charleston Railroad, is near the Muscle Shoals, famed for their wild-fowl shooting. [See Lauderdale County.] Deer, turkeys, and quail are abundant through the county.

Conecuh County—

Evergreen, on the Mobile and Montgomery Railroad, is a good initial point for the sportsman. Deer, turkeys, quail, small game and wild fowl shooting may be found in fair numbers.

DeKalb County—

Deer, bears, an occasional panther, wild turkeys, quail, and squirrels. The fishing is chiefly for black bass, chub, and bream. Reached via the Alabama and Chattanooga Railroad to Valley Head, forty miles from Chattanooga. The surface of the country is rugged and mountainous, and noted for its romantic scenery.

Escambia County—

With the exception of the southern portion, this county is still unsettled, and abounds in game, while the numerous streams afford good fishing. Deer, turkeys, quail and other game will be found in abundance, by starting out from any point on the Mobile and Montgomery Railroad.

Jackson County—

The numerous creeks in this county furnish black bass, catfish, drum, perch, red horse, and wall-eyed pike fishing. The wooded and mountainous parts are the abode of deer and wild turkeys, and quail and wild fowl are found in numbers sufficient for good sport. Take Tennessee River boats to Bellefonte, or go via Memphis and Charleston Railroad, to Larkinsville, Stevenson, or to Scottsborough, at which place board can be obtained for $12 to $15 per month.

Jefferson County—

Jonesborough. Bears and deer in the neighboring mountains, quail and woodcock in the swamps and cultivated fields. Game abundant along the Salem Creek, and on the line of the Alabama and Chattanooga Railroad, by which Jonesboro' is reached. Good hotels.

Lauderdale County—

North Alabama is one of the finest hunting regions in the United States. The fields are filled with quail, the woods with wild turkeys and deer, and all the streams and ponds in winter abound with wild ducks and geese. The finest wild-goose shooting is to be had every winter in the Muscle Shoals on the Tennessee River, where the wild geese congregate by the thousands. The shoals are about five miles wide, and filled with small islands, called "tow-heads." Most of these tow-heads are covered with drift wood, in which the sportsmen conceal themselves, and shoot the geese as they fly over, which happens every few minutes, as they are constantly being disturbed by one cause or another. Just before nightfall, the geese leave the river for the fields and ponds, which affords the sportsman another good opportunity for rare sport. What is true of the wild geese, is more or less true of the wild ducks, with this in addition, that the latter are to be found every where, all the winter through, filling every point, "spring branch," or creek. Wild turkeys abound every where, and the red deer almost every where. The deer are hunted with hounds. Large black bass are caught in Shoal Creek The route is to South Florence, or Florence via Tuscumbia, on the Memphis and Charleston Railroad, or to Decatur on the same road, thence via team or boat down the river. Or go to Athens on the Louisville and Nashville and Great Southern Railroad, thence by wagon.

See Decatur, Morgan County.

Lawrence County—

Courtland, reached via the Memphis and Charleston Railroad, is in the vicinity of good deer, turkey, quail and wild-fowl shooting. The Muscle Shoals (See Lauderdale County), on the northern border of the county, are accessible from Courtland.

Limestone County—

This county is well supplied with game. Deer, turkeys, quail, ducks and geese, afford fine sport, and the fishing is for black bass, salmon, pike, and speckled perch. The Nashville and Louisville and Great Southern Railroad intersects the county, and renders it easily accessible. Stop at Athens or other points on this road. Steamers ply on the Tennessee and Elk Rivers.

Lowndes County—

This county is made up of pine and hammock lands, and abounds in the varieties of game peculiar to such country. The county is intersected by the Mobile and Montgomery Railroad, and from that road the game grounds are accessible.

Madison County—

Huntsville. Excellent black bass and wall-eyed pike fishing in Flint River, fifteen miles distant. The best points are at Wood's and Gardiner's Mills. See also Decatur, Guntersville and Muscle Shoals, all of which places are resorted to by Huntsville sportsmen.

Marengo County—

For description of game and character of county, see Choctaw County. Take the route as there given to Demopolis, or thence down the river to any of the steamboat landings.

Marshall County—

Guntersville. In Short Creek are black bass, catfish, drum, perch, red horse and salmon, or wall-eyed pike. On the Tennessee River, thirty miles from Huntsville, reached by wagon or boat.

Mobile County—

Mobile. Deer, quail, snipe, ducks, and many varieties of bay birds, and wild fowl on the bay, with excellent fishing. Daily communication with Lake Pontchartrain, Louisiana (See Lake Pontchartrain).

Monroe County—

Claiborne, on the Alabama River. Deer, turkeys and quail. Reached via steamer from Mobile or Montgomery. Hotel.

Montgomery County—

Montgomery. The central position of this city and its excellent railroad and river communications with all parts of the State, render it one of the best initial points for sportsmen in the whole State. The Mobile and Montgomery, Montgomery and Eufaula, South and North Alabama, and Western Alabama Railroads all centre here, and on the line of each the sportsman will find excellent game regions. The Alabama, Coosa and Tallapoosa Rivers, on all of which steamers ply, flow through a country full of deer, bears, wild turkeys, quail and other game. The railroad and steamboat officials are as a rule well-informed as to game localities, and will always give every information in regard to the best routes, etc.

Morgan County—

Decatur. The game fish are the trout, so-called—a congener of the northern bass—the salmon, the pike, and the speckled perch, a fine fish, often weighing several pounds. These fish are usually taken with the minnow for bait, though in Swan and Beaver Lakes, they are taken with the fly, and by "bobbing." Swan and Beaver Lakes, the places most visited by anglers from a distance, are one mile from Decatur, where strangers can find good hotels. These lakes are free to all. Next to these the Muscle Shoals afford the best fishing. Deer, turkeys, quail, and wild fowl, furnish good sport.

Decatur is at the junction of the Memphis and Charleston, and the Louisville and Nashville and Great Southern Railroads. The country is hilly and mountainous.

Pike County—

The pine forests which are extensive, are filled with game; bear, deers, wild turkeys, quail, squirrels, etc. Take the Mobile and Girard Railroad to Troy, whence other parts of the county are accessible by wagon roads.

Sumter County—

For general description of the county with game and fish, see Choctaw County. Take the Alabama and Chattanooga Railroad to Livingston or York, or the Alabama Central to Coatopa, and from these points the game regions are easily reached.

Washington County—

The country and game of this county answer to the description given under Choctaw County. Take boat from Mobile up the Tombigbee River to St. Stephens, or strike off from any of the stations on the line of the Mobile and Ohio Railroad.

Wilcox County—

Take the Alabama River steamers to Black's Bluff or Clifton, or the Selma and Gulf Railroad to Allenton, or Pine Apple. Deer, turkey and quail shooting, will be found along the river bottoms, and other varieties of large and small game in the woods.

ALASKA.

Alaska has an area of 580,107 square miles. The southern and western portions are mountainous and near the coast covered with forests of spruce, cedar and fir. The Northern and Arctic Ocean coast regions are level and, for the most part, barren. The climate is not so severe as that of the corresponding latitude on the Atlantic coast. The mean annual temperature at Sitka is 42°. The zoölogy of the country embraces, elk, deer, polar bear, barren-ground bear, grizzly bear, black bear, seal, fox, beaver, marten, otter, mink, lynx and wolverine. Alaska is the nesting place of many migratory birds; geese, ducks, the canvas-back and others, swans, ospreys, etc. The ptarmigan is found here. The fish are of many varieties and of inexhaustible quantities, constituting the chief wealth of the country.

At the head of the salt water species stands the salmon, found from Behring Straits to the most southerly point of Vancouver's Island. In the spawning season the straits, bays, sounds and inlets of the coast are thronged with it. From the first of June to the middle of August the Stikine and Yukon Rivers are fairly alive with the countless numbers hastening to the headwaters, among the mountain gorges. The first salmon to visit Alaska is the chief or king salmon, the *onchorhynchus orientalis* of Pallas. Two other species are also found in these waters, the *O. lagocephalus* and *O. proteus*, of Pallas, and the *noot-glag-hoo* and *noog-lag-uh*, respectively, of the Yukons or Tinnehs. The salmon or mountain trout is very abundant in the northern portion of Alaska, and is apparently a constant resident, as it is found in the streams at all seasons.

The *O. sanguinolentus*, or red-fish, the *O. lycaodon*, or dog salmon, and the *salmo purpuratus* or black salmon, of Pallas, arrive in the rivers between August and October, and run for a month or more.

A sucker found here, which is called *craskee* by the Russians, (*catostomus teres*), is quite common, and for its northern habitat, quite large, averaging from four to seven pounds. A species of the cottidæ, called *unduk* by the Tinnehs, frequents the shallow streams and ponds, and is caught in large numbers by the aborigines, who scoop them out with their hands, paddles and grass baskets. A small dace, also found with this, bites readily at a

baited hook. The pike, (*esox estor*), is very abundant in the ponds and lakes of the almost arctic regions of Alaska. The burbot, eel pout, or losh, (*lota maculata*), swarms in the lakes and rivers. Of the white-fish, there are several varieties or species, the larger portion being allied to the southern prototypes, the greater difference being in their numbers. The nulato—*nulatoski* of the Russians, the *morskoi*, or white-fish of the Russians, the hump-backed species, the *corabati* of the Russians and *Ko-lak-ah* of the Yukons, is quite abundant but bony and insipid, the *coregonus nasus*, or round fish—the Russian *krug*, and Yukon *hutuen*, is a denizen of several streams, and is often caught for food; the *coregonus muksun*, or broad white-fish, the *tel-ih-yuh* of the Yukons, weight of thirty pounds. The largest of this genus is the great white-fish, (*luciotrutta leucicthys*), which excels its congeners not only in size but flavor. It is very abundant in the Stikine and Yukon Rivers—and is found in all the streams throughout the year. The grayling, (*thymallus*), is very abundant, and with the brook trout completes the list. The salt water fishing is for cod, tom cod, halibut, five species of clupea, two species of flounders, euchalon and smelts.

ARIZONA.

The surface of the State, which has an area of 113,916 square miles, may be described as a series of wide and elevated plateaus sloping gradually southward and interspersed with desert wastes and arid plains on which no vegetation grows, excepting the artemisia or sage bush. These plateaus are broken up by numerous mountain chains and spurs and diversified by many lofty buttes. A noticeable feature of the country is the number and depth of its cañons. The mountain regions are densely wooded and are the haunts of many kinds of wild animals. The plateaus, prairie and sandy plains, are, especially in the southern portions, good shooting grounds for wild fowl and other game birds. The game of the country includes elk, deer, antelope, mountain sheep, pumas, jaguars, ocelots, black and grizzly bears, wild cat, red and grey wolves, fox, peccary, raccoon, opossum, sage-rabbit, several varieties of squirrel, wild turkeys, ducks and geese in great variety and abundance, swans, cranes, curlew, snipe, plover, etc., in countless multitudes. The streams contain several varieties of gamey and finely flavored fish.

Arizona is thinly settled, there being few towns, with a limited number of military posts. The population is in great part of Spanish and half-breed descent. The lines of communication through the country are few, and confined to the stage routes,

These are all more or less infested by Indians, chiefly Apaches, rendering travel and hunting here very precarious. For this reason we have not specified particular localities. The sportsman will not be apt to go far from the regular lines of travel, nor will he need to do so. He will find in his pathway game of all kinds and in such quantity as to afford him constant occupation. We will however mention, as one of the best regions for elk, deer, antelope and wild turkey shooting, the White Mountains.

ARKANSAS.

Arkansas has a population of 484,471. It is sparsely settled in nearly all parts, and therefore offers unusual opportunities for sportsmen who are willing to rough it. There are very few country hotels in the State, that can be dignified even by the name of tavern, so that the sportsman must generally be prepared to camp out, or take chances at the farm houses and plantations. As a rule, the people will be found hospitable to true gentlemen sportsmen, and willing to entertain them. Much of the hunting will have to be done from the saddle or pirogues. The State is tolerably flat in the lower division, filled with canebrakes, and cut up by water courses. In the middle it is densely wooded and undulating, interspersed with prairies. The northern part is hilly, and the northwestern part partakes of the features of the Indian Territory adjoining. The northeastern counties are an unbroken level, with the exception of Crowley's Ridge, a low range of hills, which traverses six counties from northwest to southeast, averaging in width from two to five miles. This range of hills runs parallel with the St. Francis River, and is the western boundary of the Great Mississippi Swamp. To the east of this range of hills, and between the St. Francis and Mississippi Rivers, lie the swamp counties of Crittenden and Mississippi—about forty miles in width and about one hundred in length. They are but thinly settled, abound in lakes and bayous, and are traversed by the Tyronza and Little Rivers, tributaries of the St. Francis.

The unsettled portions of these counties consist of dense and heavy canebrakes and low swamps. The animals found here are the bear, panther, wolf, wiid-cat, deer, and turkeys and water-fowl of every variety, from the swan to the smallest duck. This is also a fine field for trapping. Beaver, otter, mink, coon, etc., are very abundant. The rivers, lakes and bayous abound in every variety of game fish known to this latitude—such as trout, black bass striped bass, speckled perch, and all the varieties of bream and lake perch ; these are taken in great numbers at any season of the year.

The country west of these hills is level as far west as White River—with one small prairie about six miles in width, and thirty in length—a fine field for deer and bird shooting.

The swamp country is accessible from Memphis by river, and by the Memphis and Little Rock Railroad. The lakes and bayous are numerous and without names. The principal and largest one is the Sunk Land Lake of the St. Francis and Little Rivers, situated in the counties of Greene, Craighead and Mississippi, just below the Missouri line. The general physical characteristics of the State resemble those of Texas. There are few railroad, steamboat, and stage facilities throughout the State.

Clark County—

Arkadelphia, on the St. Louis, Iron Mountain and Great Southern Railroad, is a centre for bear, deer, snipe, and wild-fowl shooting. The surrounding country is hilly and rolling.

Craighead County—

Goldsborough. The hunting grounds of St. Francis Lake are within easy access. For the game found there see Forest City, St. Francis County.

Crittenden County—

Marion, opposite Memphis, Tennessee. Deer, bears and wild turkeys in the swamps and thickets, foxes and wolves in the lowlands. Quail are abundant.

Cross County—

The dense swamps, canebrakes and forests, of which the county is mainly made up, are the haunts of many wild animals, such as bears, panthers, wildcats, with deer and the smaller game in sufficient abundance to afford good sport. The fur-bearing animals most largely trapped are beavers, otters, minks and coons. Bass, striped and black, speckled perch, lake perch, all the varieties of bream, and several other kinds of fish, afford good angling. Take the Memphis and Little Rock Railroad to Forest City, thence via team to Wittsburgh. Guides, outfit, and all necessary information will be found at Forest City.

Dallas County—

Fairview. Bears, deer, turkeys, quail, and other varieties of game.

Garland County—

Hot Springs. This is a winter resort for invalids and pleasure seekers, which will compare favorably in its attractions and appointments with any at the north. It is one of the pleasantest spots in the south, and is much frequented by northern people. There is good shooting and fishing anywhere within a radius of twelve miles, and one can here enjoy all the luxuries and comforts of civilization, and take his shooting and out door pastimes with dignity and ease. The route to Hot Springs is via the St. Louis, Iron Mountain and Southern Railway to Malvern, forty-three miles south of Little Rock, thence via the Hot Springs Railroad.

Greene County—

The hunter will here find much large game, bear, deer, panther, wolf, etc., with wild-fowl shooting, and fishing excellent. The southern border of the county touches the lakes of the St. Francis River, which are noted shooting grounds. Take the St. Louis, Iron Mountain and Southern Railway, to De La Plaine.

Hempstead County—

Fulton and *Hope*, on the St. Louis, Iron Mountain, and Great Southern Railway, are good initial points for the hunting of the county. Deer, bears, and other large game, with an abundance of wild-fowl, snipe, quail and woodcock shooting. The southern part of the county is accessible by Red River steamers.

Jackson County—

Jacksonport. The White River before its junction with Black River, abounds in a variety of fish, firm and finely flavored. Opposite the town a long sandy bar extends into the river, and off this bar some splendid fish may be taken. They are the black bass and striped bass; each kind readily takes a minnow or small craw fish. There is also a fine game fish, locally called the jack salmon.

Little Red River empties into White River, fifty or sixty miles below Jacksonport. It abounds in fish of several varieties, consisting of black bass, drum, catfish, bream, and white perch.

Red River is deep, rather clear, and with very little current. In the vicinity of Jacksonport, game is abundant. The river in winter is full of ducks of various kinds, and the small lakes, ponds, sloughs, and lagoons absolutely swarm with them. Geese are quite plenty; and occasionally a swan is seen. Bob White is there in full numbers in the plantations. A few woodcock, and an abundance of snipe. East of town, twelve or fifteen miles, deer are plenty, especially between bayous Cache and De View. Between these bayous, there is a belt of post oak barrens, almost uninhabited. The deer there are not much hunted, and lie well when approached on horseback, and when hunted with hounds do not run off, but tack and dodge for hours.

In the dense cane along the river are found bear, wild-cat, and occasionally a panther. Ducks can be bagged by the score by stalking them—under cover of the switch cane—along the bayous, lakes and ponds, and by floating for them in the river. Snipe are abundant. Reached via the St. Louis, Iron Mountain and Great Southern Railway to Newport, thence via stage or hired conveyance.

La Fayette County—

The numerous bayous of this county, with the rivers and water courses, afford fine shooting for geese and ducks. The hammock lands are the haunts of the deer, bear, wild cat, and other varieties of large game, snipe and woodcock shooting Louisville will be found a good initial point, and may be reached from some station on the St. Louis, Iron Mountain and Southern Railway. Communication is also had with different points by the Red River steamers.

Miller County—

Texarkana. Bears, deer, wild turkeys, quail, pinnated grouse. Reached via St. Louis, Iron Mountain and Southern, or Texas and Pacific Railroad. Hotel $2.50; guides $1; teams $3. Camping necessary. Good sport can be had anywhere in the vicinity, by going from one to four miles back from the railroads.

Mississippi County—

Lewis and *Osceola.* See the northeastern counties above. Osceola is reached via Mississippi River steamers. The hunting grounds of St. Francis Lake are accessible. See Forest City, St. Francis County.

Prairie County—

Des Arc. In the extensive canebrakes between the White and Cache Rivers are great numbers of deer, bears, wild cats, wolves, panthers, and other game. Des Arc is a few miles distant from *Devall's Bluff*, which is an excellent initial point for sportsmen. In addition to the game mentioned above, there are found within a few miles of the town, wild turkeys, pinnated grouse, quail, snipe, plover, rail, geese, brant, ducks, and water-fowl of all varieties. Four miles distant is Pepper's Lake, one of a chain forming the head waters of Reese's Fork. These lakes teem with fish in great variety, and are fine shooting grounds for wild-fowl. Rock Roe Lake affords the best fishing. Reached via the Memphis and Little Rock Railway, or via boat from Memphis. Hotel $1.50, $7 per week. Write to T. M. Horsfall.

Phillips County—

Helena. In the numerous lakes in the vicinity are found all the variety of water-fowl that winter in this latitude; in the woods are deer, black bears and occasionally a panther. Trout, bass and white perch in the waters. See Austin, Mississippi. Reached via the Arkansas Central Railroad.

Poinsett County—

Harrisburg. For the game, see Forest City, St. Francis County. St. Francis Lake is easy of access.

Pulaski County—

Little Rock. The sportsmen of this city have, within a day's ride, excellent shooting for such game as bear, panther, wild-cat, deer, wild turkey, quail, woodcock, ducks, geese, snipe, and other varieties. The fishing is for black bass, drum, cat-fish, brown and white perch.

St. Francis County—

Forest City is the initial point for sport in St. Francis and the adjoining counties. The game here comprises bear, wolf, panther, wild-cat, deer, turkey, all varieties of water fowl, beaver, otter, mink, coon; trout, black and striped bass, speckled and lake perch, all the varieties of bream, and other kinds of fish. Reached via the Memphis and Little Rock Railroad, forty five miles from Memphis. The Hunting Club will give all needed information, and show every attention to gentlemen sportsmen from abroad. Teams ($4) and camping outfits can be procured for the St. Francis and Little Rivers and their lakes, seventy-five miles north. Here will be found all the varieties of game enumerated above.

Black Fish Lake, two and one-half miles north of Black Fish Siding, a station on the Memphis and Little Rock Railway, and thirty-three miles from Memphis, is a favorite resort for sportsmen. The region abounds in the game mentioned under Forest City. The lake contains black and spotted perch.

Van Buren County—

On *Sugar Loaf* and the adjacent mountains is found game in great variety and abundance. The streams afford excellent fishing.

White County—

West Point. Coons, otters and minks are found in this vicinity.

The Red River. For the fish and game of this region see Jacksonport, Jackson County.

White Court House.—Raft Creek is a small sluggish creek of about fifteen miles in length, widening out into small lakes and large cypress ponds in its tortuous course into White River. Baley lake is much visited as a fishing resort by the people living back on the hills. The water is deep, and fine buffalo fish and perch are taken with the hook and line. Although the lake is right in the bottom and subject to six feet overflow from White and Little Red Rivers, there is about twelve acres on the north bank of the lake entirely above any high water which would be a pleasant camp ground at any time in the winter. Good deer and turkey shooting, and fine trapping all around this country.

Woodruff County—

Augusta. For the game region lying between the bayous Cache and De View, see Jacksonport, Jackson County.

CALIFORNIA.

California has an area of 188,981 square miles, with a population of 560,247, the bulk of which is confined to the belt lying between the thirty-seventh and fortieth parallels. The distinctive physical feature of the State is her vast mountain system, which may be divided into two grand divisions, the Sierra Nevadas on the east, and the Coast Range on the west. In addition to these, there are many distinct ranges, spurs, and isolated peaks, or buttes. Between the Sierras and the Coast Range lie the extended valleys of the San Joaquin, and the Sacramento; and east of the culminating crest of the Sierras is the lake country. The State is divided into three parallel sections, the Eastern slope, or the territory east of the Sierras; the California Valley, between the foot-

hills of the Sierras and the Coast Range, and the Pacific slope, between the Coast Range and the ocean. The face of the country presents every variety of surface, lofty mountains, fertile river valleys, cañons, wide stretching plains and prairies, and tulé lands. These tulés, or marsh lands, consisting of dense brakes of rushes and covering nearly one-half the entire surface of the State, are in all seasons the abodes of numerous and varied wild-fowl and game animals, and afford unlimited sport for the hunter. The game of the State, embraces one hundred and fifteen species of mammals, three hundred and fifty species of birds, and one hundred and fifteen species of fish. Every portion of the State is accessible by rail, stage-coach and steamboat ; while excellent hotels, guides, boats, saddle horses, and all the necessary articles of camping outfit are everywhere easily secured. With the abundance and variety of game, and the facilities of communication here offered, California will long offer peculiar inducements to the sportsmen of the country.

Alameda County—

Oakland. Within a radius of fifty miles, there are at least twenty localities where good trout fishing may be had. There are the Water Company Lakes, or Lake Merced, of the Acclimatizing Society, in either of which, for a small fee, permission may be obtained to fish, and fine fishing is to be found. There are a great number of creeks and streams inland, north, south, and east, where are frequently taken from thirty to fifty trout in a day's fishing.

Berkeley. See San Francisco.

Amador County—

Amador City. In the Amador Valley, jack snipe, quail, ducks and other game birds are found in great abundance. Reached via the Sacramento and Placerville Railroad to Latrobe, thence stage.

Butte County—

Durham. In the Sierra Nevadas, seven miles distant, bear, deer, California lion and other large game ; wild fowl abundant in the valley near the town ; good fishing in a branch of the Feather River. Reached via the Oregon Division of the Central Pacific Railroad. Guides are necessary for the mountain hunting.

Chico. Bear, deer, trout, salmon, sturgeon and pike. Reached via Central Pacific Railroad, Oregon Division. Board $1 to $3 ; teams $3 to $10.

Cana. Grizzly bear, deer, ducks, geese, quail ; salmon, mountain trout. Reached via the Central Pacific Railroad. Hotel $1 ; guide $1.50 ; teams $5.

Nord. Deer, elk, panther, California lion, grouse, quail, ducks, snipe, curlew, rabbits, hares ; salmon, sturgeon, trout, perch, white fish. Reached via the Oregon Division of the Central Pacific Railroad. Hunters must camp. Indian guides can be procured at small expense. Hunters and stockmen are scattered through the mountains, and are always hospitable.

Contra Costa County—

Martinez. See San Rafael, Marin County.

Fresno County—

Borden. Bear, deer, antelope, quail, geese, ducks, swans, cranes ; mountain and salmon trout, salmon and white perch. Reached via the Visalia Division of the Central Pacific Railroad. All along the line of this road, the sportsman will find plenty of ducks and geese. Board $1.50 ; teams $2.50 to $5. For hunting in the mountains, guides are necessary, and can be secured for $35 per month, and found. The San Joaquin, Fresno and King's rivers, are good fishing streams.

Berendo. Antelopes, hares, rabbits, sand hill cranes, ducks, geese ; trout and

salmon trout in the San Joaquin River. For route, see Borden. Board $1.50 to $2, $7 per week. Camping necessary for successful sport. The country prairie.

Humboldt County—

The Humboldt Bay Country comprises all of Humboldt, and parts of Klamath, Trinity and Mendocino Counties. The bay is twenty miles long, and from one to one and a half miles wide. At its head is Arcata; half way down Eureka, and three miles farther south, Bucksport and Fort Humboldt.

The game includes the grizzly, cinnamon and black bear, California lion, panther, lynx, cougar, wild cat, elk, deer, red, black, grey, and prairie wolves, foxes, raccoon, opossum, porcupine, rabbit, jack rabbit, otter, sea otter, seal, sea lion; swans, Canada, Hutchins' and brant geese, eighty varieties of ducks, wild pigeon, plover, curlew, willet, many varieties of bay snipe, Wilson snipe, woodcock, mountain quail, California quail, ruffed, pinnated, pintail, and Canada grouse, ptarmigan, and a host of small birds of all varieties and kinds; salmon, trout, mullet, bass, rock cod, flounder, sunfish, catfish and dozens of other kinds.

Humboldt Bay is reached via the Pacific Coast line of steamers from San Francisco, or via rail and stage.

Camp Jagua. Salmon trout fishing, excellent hunting. The game includes elk, deer, bears and California lions, with great numbers of quail and grouse. Reached by hired conveyance from Humboldt Bay.

Kern County—

Delano. Deer are found among all the mountains of the county. Antelope, a few elk; quail along the foot-hills, hares, rabbits, geese, ducks in great variety, and swans. Reached via the Southern Pacific Railroad. Board $27 to $35 per month. The hunting grounds are near Kern River, Pasa Creek, and Tulare Lake, ten miles distant, where camping is necessary.

Caliente. Deer, wild hogs, quail. Reached via the Southern Pacific Railroad. Board $2; teams $3 to $5. Caliente is among the foot-hills of the mountains.

Lake County—

Lakeport. Rabbits and quail are abundant in the hills west of Lakeport. For route see Glenbrook.

Adam's Springs. Deer, quail, rabbits, squirrels; with mountain trout abundant in a pond one mile from town. For route see Glenbrook. Hotel $2, $10 per week; saddle horses $2, teams $5 to $8. Eight miles north is Clear Lake, with boats, etc.

Glenbrook. Bear, deer, quail, grouse, ducks, geese, trout. Reached via the California Pacific Railway to Calistoga, thence stage thirty miles. Board $2.

Klamath County—

See Humboldt County.

The Valley of the Klamath River. See Berryvale, Siskiyou County.

Los Angeles County—

In this county and those adjacent to it are many varieties of game.

In the foot-hills and lower lands, quail, rabbits, hares, wild pigeons, doves, and bastard snipe, black-tail deer, antelope, coyotes, wild-cats, mountain lions, coons, foxes, badgers, many ground grey squirrels, and a few tree squirrels. On the marshes and lagunas are wild fowl, swans, grey, white, and a blackish-colored goose, mallards and canvas-backs, red heads, grey ducks, blue-bills, sprig-tails, long-tails, widgeons, three kinds of teal, blue-wing, cinnamon, and green wing, *chufladoses*, gadwells, spoon-bills, ice ducks, and several other varieties. There are also brant, and on the coast many sea fowl. In the mountains are deer, California lions, cats, black, cinnamon, and grizzly bears, big horn sheep, goats, grey squirrels, pigeons, mountain quails, and rabbits. Elk are occasionally seen.

Anaheim. Deer, rabbits, hares, quail, geese and ducks. An occasional grizzly bear is shot within thirty or forty miles. Reached by branch of the Southern Pacific Railroad. Board $2 to $2.50.

Compton. Geese, ducks, snipe, rabbits, hares; rock fish, smelt, barracontas, etc. Reached via Southern Pacific Railroad. Hotel $2, $40 per month.

Monte. Quail, hares and rabbits in the valley; good trout fishing in San

Gabriel Cañon, ten miles distant, and ten miles beyond excellent sport may be had with bear, deer, and mountain sheep. Reached via the Southern Pacific Railroad. Hotel $6 per week. For successful sport, camping is preferable.

Pomona. Rabbits, quail, ducks and geese on the plains, deer, rabbits and quail among the foot-hills, and in the mountains grizzly bears, California lions, mountain sheep, wild-cats, etc. The mountain streams abound in trout. Reached via the Southern Pacific Railroad. Board $1 to $2; teams $4 to $6. Provide camping outfit.

Santa Monica. Quail in the cañons, snipe and curlew in the lagoons and along the beach. Deer are abundant among the mountains. Railroad connection with Los Angeles.

The San Gabriel Narrows, reached by rail from San Francisco to Los Angeles, and thence by wagon or saddle horse, is a starting point for those who go to hunt in the Big Pine Mountains, which abound in game of all kinds.

Marin County—

Junction. Bears, deer, quail, ducks, snipe; brook trout and salmon. Reached via the North Pacific Coast Railroad, seventeen miles from San Francisco.

Nicasio. Cinnamon bear, deer, California lion, wild-cat, coon, fox, squirrel, badger, hare, rabbit, quail, snipe, wild goose, duck, brant; mountain and salmon trout, salmon. Reached via the North Pacific Coast Railroad, twenty-four miles from San Francisco. The country mountainous.

Sancelito. Bears, deer, rabbits, quail, ducks; salmon. Six miles from San Francisco, via the North Pacific Coast Railroad. Board $7–15 per week. Guides, boats, etc., to be obtained. Hilly and mountainous country.

San Rafael. Take steamer from San Francisco to San Rafael, and thence a two or three-mile drive to the grounds. After the rains set in, Suisun Bay, near Martinez, affords capital hunting grounds; also the neighborhood of Milbrae, on the S. P. R. R. and, in fact, all along the Bay of San Francisco good duck-shooting can be had. There are plenty of ducks about Suisun Bay, Solano County, but most of them are on the inshore lakes, and difficult to get at. The ducks are principally teal, which resort to the creek below San Rafael in thousands to feed at low tide upon the shrimps and soft crabs left on the flats. Milbrae has a good hotel.

Mendocino County—

Anderson. Bears, deer, quail, geese, ducks; salmon, trout, sturgeon, bass, perch. Reached via San Francisco and Northern Pacific Railroad, or steamer, to Cloverdale, thence stage or hired conveyance. Board $1; guides $2; teams $4.

North Forks of the Navarro River. Deer and small game, with good trout fishing. Reached as above to Cloverdale, thence stage to the North Fork House, where comfortable accommodations will be found, $2. The hunting ground is very mountainous and heavily wooded.

Noyo. Bears, deer, an occasional panther, quail, ducks, cormorants, divers, salmon. Route as above to Cloverdale, thence a stage ride of two days. The Noyo House, John Byrnes, $2, boats free to guests. The wood-cutters will act as guides.

Merced County—

Merced. In the San Joaquin Valley, antelope, ducks, geese and snipe; towards the Yosemite Valley, bears, deer, quail, grouse. Trout, salmon, perch and pike are found in the mountain streams and in the Merced and San Joaquin Rivers. Reached via the Central Pacific Railroad. Hotels $2 to $3; guides $2, double team and driver $16, four horse team with driver $25.

Plainsberg. Antelope, ducks, geese, quail, hares, rabbits. Reached via the Visalia Division of the Central Pacific Railroad. Board $1 to $1.50; teams $4. For good sport camp out. Prairie country.

Mono County—

Bridgeport. Deer, quail, swans, wild geese, and ducks of all varieties. Reached via the California Pacific Railroad. Hotel $2; boats $1.

Napa County—

Calistoga. Bear, deer, quail, brook and salmon trout. Reached via the California Pacific Railroad. Board $6 per week; teams $6; boats, etc., to be obtained.

Napa City. Deer, wild hog, quail, snipe, ducks and other wild fowl. Reached as above. Hotel $2; teams $5 to $8. The country is hilly and mountainous with excellent grounds for camping.

St. Helena. Black, brown and grizzly bears in the mountains. Deer and quail are very abundant, and there are a few grouse. Reached as above. Hotel $2, private board $6 to $10 per week.

Yountville. Deer, a few bears, quail and rabbits abundant, and good trouting in all the streams. Route as above.

Nevada County—

Independence Lake is well known among sportsmen as an excellent game centre. Black, cinnamon and grizzly bears, deer, and California lions constitute the large game, while of birds there are great numbers of grouse, mountain quail, ducks and geese. The trapper will here find lynx, wild-cat, fisher, otter, marten, mink, and red cross, silver grey and black foxes. The brooks are filled with trout, and in the lake the lake trout weigh from eight ounces to a pound. Reached via stage from Truckee, fare $2. The Independence Lake House, J. A. Rhodes, proprietor, furnishes good accommodation at $3; boats and tackle free to guests.

Bronco. Bear, deer, mink, otter, wild-cat; good trouting. Reached via the Central Pacific Railroad. Board $1; guides $3. Camping necessary. The country is mountainous, and heavily timbered.

Boca. Deer in the hills six miles distant, jack rabbits, quail, grouse, ducks; trout and other fish in Truckee and Little Truckee Rivers. Independence Lake is fourteen miles distant. Reached via the Central Pacific Railroad. Board $7.50 per week; teams $8 per day. This country is mountainous, with pine timber.

Truckee. Bear, deer, quail, grouse, geese, ducks; trout, white fish. Reached via Central Pacific Railway. Board $2 to $5, guides $3, boats with boatmen $5, teams $5 to $10. Truckee is on the river of the same name. Donner Creek, one and one-half miles distant, Donner Lake three miles, Lake Tahoe fifteen miles, Webber Lake twenty-one miles, Independence Lake twelve miles. See Reno, Nevada. Country hilly and mountainous.

Prosser Creek. Grizzly and cinnamon bears, deer, grouse, mountain quail; speckled and salmon trout. Hotel $3. Mountainous country.

Placer County—

Lake Tahoe, famous for its trout fishing, is reached via the Central Pacific Railroad to Summit or Truckee, thence stage to Tahoe, on the lake. From Tahoe, an excursion steamer makes the circuit of the lake. There are several good hotels, with guides, boats, etc., always to be had.

New Castle. Deer, quail, rabbit, squirrel, fox and wild-cat. Reached via Central Pacific Railroad. Board $1, $6 per week; teams $8. Hilly country.

Emigrant Gap. Deer, cinnamon bear, grouse, quail; trout and white fish in American and Bear Rivers, and Crystal Lake. Reached via Central Pacific Railroad. Hotel $1 to $1.50. Teams can be procured in summer. Mountainous country.

Cisco. Bear, deer, fox, grouse, quail. Reached via the Central Pacific Railroad. Hilly and mountainous country.

Plumas County—

Summit. Bear, deer, mountain sheep, grouse, quail; several varieties of trout. Reached via the Central Pacific Railroad. Board $3. Saddle horses, guides, etc., can be procured. The country is very mountainous.

Sacramento County—

Sacramento. There is excellent wild fowl shooting along the river. Twenty miles below the city, a tide slough that heads up in the plains is the resort of great flights of ducks and geese. There are many varieties of the former, including grey, speckled breasts, mallards, sprigs, widgeons, teal, and others. Ducks are also very abundant on the Marysville road, a short distance from the city.

San Bernardino County—

Colton. Grizzly and cinnamon bears in the mountains, deer on the foot-hills, quail, jack rabbits and hares in the valley. Reached via the Southern Pacific Railroad. Hotel $2. For large game camping is desirable.

San Francisco County—

Lake Merced, five miles from San Francisco, is stocked with salmon and trout. Owned by a private club, with fine accommodations for members and their guests. A pleasant drive from the city. There are no other fish in the lake but bullheads and stickle backs, with perhaps a few other sorts of small fish. There is on the shore of the lake a hotel—the Ocean View House—and at the head of the lake a small tavern, kept by Haskins, where boats can be obtained. Near the ocean, and but a short distance from the lake, is the Ocean Side House, four miles from the famous Seal Rocks and Cliff House, and seven miles from the city.

San Francisco. There are quail, black-tail deer, jack snipe, rabbits and hares all about San Francisco. The favorite grounds of sportsmen are the great valleys of the San Joaquin and Sacramento. The State can produce no better ducking-ground than the San Joaquin Valley, and geese are nowhere more abundant. Snipe and the smaller aquatic fowl are also plentiful. The Sacramento, almost equally accessible, is unsurpassed. The sportsman taking the four o'clock steamboat, finds himself at supper time passing Rio Vista. He may debark anywhere along here on the Solano shore, unpack his things and begin shooting on excellent grounds for water fowl. Collinsville and Bridgeport he will find convenient stopping places, with boats and guides at a moderate hire. Going further he will find unsurpassed shooting on the islands in the Sacramento. Or, if another route is preferred, let him take the cars to the San Joaquin Bridge—if he can school himself to pass the great Livermore snipe grounds. He will there find boats at his service, and scow or flat boat hotels, maintained by experienced river gunners, who will feast him with the best of sportsman's cheer, and take him to the cream of the shooting grounds. The Santa Clara Valley also swarms with wild fowl, and there are excellent sporting fields near Salinas. There is also an abundance of the birds on the San Mateo marshes, which may be reached in an hour from this city by car or rail. The hills back of Berkeley, in or about Wild Cat Creek, afford many rabbits and quail. Deer are frequently met.

There are other resorts not as good which sometimes afford those who must be contented with a few hours' shooting, a little fun, such as Sancilito, around the Cliff House, Alms House, Seven-mile House, or San Bruno road; an occasional hare may be shot in such places, and sometimes some jack snipe at San Bruno.

The Alameda Marshes give good duck shooting from blinds, with decoys, but the birds are very wild. The ducks most abundant there are widgeon, spoon bill, and teal, some quail, curlew and jack snipe may occasionally be found. The fishing in the bay is for salmon, grilse and tom cod. The Oakland long wharf, opposite the city, is the favorite place for anglers. There are many resorts within a short distance of the city, easily accessible by the different railroad lines. The Southern Pacific Railroad will take the anglers to Lakes Pilercitos and San Andreas, controlled by the Sportsman's Club of California. San Bruno is the station, and the fare is fifty cents. A vehicle will convey persons to the fishing grounds. To fish here it is necessary first to become a member of the Sportsman's Club (initiation fee, $20; dues, $3 per quarter). There are club houses at both of these lakes. All other information may be obtained from Mr. William Stuart, the Secretary, at No. 113 Leidesdorff street. Pilercitos, one of the Spring Valley Water Company's reservoirs, is now well filled with fair-sized trout, and San Andreas, chiefly with silver salmon of generally moderate size.

The Pilercitos trout are very gamey: the meat is of a rich, red color, and they are in every respect an excellent table fish. The angler who is not a member of the Sportsman's Club may go on to San Mateo (21 miles, ninety cents). Near the town he will strike the San Mateo Creek, in which is good trout fishing. Should he wish to extend his journey to the coast he may proceed by stage from San Mateo to Spanishtown, where will be found two or three pretty good trout streams, and beyond there down the shores of the ocean are Purissima, San Gregorio, Lobetis, Pescadero, Butano, Scott, and other creeks, in each of which tolerably good and sometimes excellent sport may be had, although the fish are mostly not of much size. Between San Mateo and Santa Clara there are several small streams, which can be reached on a Saturday, and where fishing may be enjoyed from that day to Monday morning. The names of these creeks are the Adobe, San Francisquita, Stevens, and Congress Hall. From Santa Clara, stages connect for Saratoga in Santa Cruz County, from which point may be reached the head-waters of the San Lorenzo, once a capital trout stream, and affording fair sport now. There is good fishing in the Guadaloupe, Coyote, and Los Gatos Creek, all of which may be reached via Santa Clara.

On the San Francisco and North Pacific Railroad, good fishing may be had in

Santa Rosa Creek. A branch of this road runs from Fulton to Guerneville, a distance of fifteen miles. At the latter place may be found some of the finest trout fishing in the State. Squaw Creek, north of Cloverdale, and Sulphur Creek, near Cloverdale, are very attractive trout streams. For the full enjoyment of the beauties of nature, the aroma of the redwoods and a genuine feast of trout fishing, these latter streams, including those on the headwaters of the Walhalla, Big River, Navarro River, Dry Creek, Russian River, and Little Dry Creek, in Sonoma County, will require a vacation of a week or two. The San Francisco and North Pacific Railroad Company will make special rates with camping parties, desirous of stopping over at any of the stations on their line. The rates of fare and the distance of some of the prominent places are:

	Distance Miles.	*Single Trip.*	*Excursion.*
Petaluma	42	$1 50	$2 00
Santa Rosa	57	2 00	3 00
Fulton	61	2 25	3 50
Mark West	63	2 50	3 75
Healdsburg	72	3 00	4 00
Littons	76¼	3 25	4 50
Guernville	77	3 75	5 00
Cloverdale	60	4 25	5 50

The excursion tickets are only good from Saturday to Monday.

The North Pacific Railroad from San Quentin to Moscow, at the mouth of the Russian River, runs through a magnificent region of country, which is watered by innumerable streams, in which the finny tribe abounds. The "Lagunitas," or "San Geronimo," Creek, is the first trouting stream north of the city, of any magnitude, in which the public are allowed to fish, and here only on payment of a moderate sporting fee. The head-waters can be reached by way of San Rafael, on horseback, or even by buggy, if a strong one. The best way of entering the cañon, however, for a man who is willing to walk five or six miles, is by way of Fairfax, just beyond San Rafael. The scenery is superb and the fishing fair. If one wishes a tramp of a dozen miles or so, let him make the passage of Lagunitas, from its source, just back of Mount Tamalpais, to its confluence with White Creek, and here he can take the cars of the North Pacific Coast Railroad for the city; but he should not attempt the passage alone, and must be prepared to camp over night part way down the cañon. The way is very rough, and one must stick close to the bed of the Creek.

From the point where it strikes Paper Mill Creek (which is formed by the uniting of the Lagunitas and White Creeks), the railroad follows the cañon many miles. A short distance below the paper mill, at Taylorsville, from which the creek takes its name, is a dam. In this vicinity sportsmen are not allowed to fish, the ground being reserved for private use; but below the mill property the stream is, we believe, public fishing ground. The cars, following the cañon, will put you down or take you up at any point, on request. At Olema, several miles below, the creek flows into Tomales Bay; and here, in the months of February and March, extending at times into April, great sport is had in taking salmon-trout with shrimp bait. Olema, possessing a good country hotel and livery stable, with three small but well-stocked trout streams (one close by and two in the distance of a few miles) offers special advantages to fishermen from the city who wish to make the shortest possible trouting excursions. Leaving the city at about midday, you may reach Olema in time to get the evening's fishing, and return the next day, after a morning's sport. A full day or a week even, for that matter, can be pleasantly spent here and in the vicinity. Fare to Olema and return, $3.50.

From Olema to Bolinas, a distance of twelve miles, runs one of the finest wagon roads in the country. You can go by livery team or stage from Olema.

At Bolinas are two hotels, and in the vicinity two trout brooks. Here also are two ponds for artificial propagation, where the fishing is moderate. Bolinas can also be reached via Saucelito, by stage. Fare to Bolinas and return, $1.75.

On the line of the Central Pacific Railroad, by an experienced angler, some trout may be whipped out of Alameda Creek early in the season. At San Leandro, a short distance above the water-works, the sport may be enjoyed, also near Hayward's, in Palmyrus Creek, and in Stony Brook, near Niles. These streams are all within a few hours journey of this city.

Those who feel disposed to engage in the invigorating exercise of a good tramp

before they cast their lines, should go over to Berkeley, and, taking the San Pablo road, walk over the hills to Wild-cat Creek, five miles from the University. They will find some excellent sport here. Two miles beyond this stream they will strike the San Pablo Creek. In both they will be rewarded by good catches.

San Joaquin County—

Stockton. Ducks, geese, snipe, quail; salmon, salmon trout, perch. Reached via Central Pacific Railroad. Board $2.50; saddle-horses and teams $1.50 to $10. Country prairie and marsh land.

Lodi. Hare, quail and snipe in the immediate vicinity. Six miles down the Mokelumne River, among the tules, geese, ducks and cranes are abundant. Reached via the Central Pacific Railroad. Hotel $2; guides and boat $3.50 to $4; teams $3 to $4. Prairie country, interspread with oak timber.

Banta. Deer, wild hogs, grouse, quail, and all kinds of wild fowl shooting at the San Joaquin, Old and Middle Rivers, Shag Lake and Tom Paine Slough. Reached via the Central Pacific Railroad. Board $2; guides $2 to $3; teams $5 to $10. Low and level country.

Lathrop. Geese, ducks, quail, hares, rabbits, and excellent fishing in the San Joaquin River. Reached via the Central Pacific Railroad. Board $2; teams $5 to $10. Best sporting grounds three miles distant. Prairie country.

Ellis. Bear, deer, quail, woodcock, all varieties of geese and ducks; salmon trout. A station on the Central Pacific Railroad. Hotels $2 to $2.50; guides $3; teams $5. Camping necessary. Country mountains and plains.

San Luis Obispo County—

Paso Robles. Game in wildest variety. Reached via Southern Pacific Railroad to Soledod, thence stage. Hotel accommodations.

San Mateo County—

Pescadero. Excellent salmon and grilse fishing. Wild ducks are here in great numbers, but the absence of covert renders successful shooting extremely difficult. Reached from San Francisco via Southern Pacific Railroad, twenty-eight miles to Redwood city, thence stage thirty-two miles. There are good hotels, with boats, etc., always at hand.

Millbrae. See San Rafael, Marin County.

Santa Clara County—

San Jose. Bears, deer, California lions, hares, rabbits, ducks, geese, snipe, quail; trout. Reached via the Central Pacific, or the Southern Pacific Railroad. Hotel $1 to $4. Mustangs for hunting expeditions, can be bought cheap. The country is hilly and mountainous.

Santa Cruz County—

Santa Cruz. Fine sea fishing. Reached from San Francisco, via stage or steamer. The hotel accommodations are excellent. In the Santa Cruz mountains which are crossed by the stage route, are many fine salmon trout streams, with bear and small game in abundance. Good hotel accommodations, and guides will be found.

Shasta County—

The McCloud River U. S. Fishery. The McCloud river is famed for its salmon and trout fishing. Take the Central Pacific Railroad Oregon Division, to Redding, thence stage twenty-two miles.

Castle Rock. Bears and deer; salmon trout, mountain trout and salmon, all in great abundance. Reached via Oregon Division of Central Pacific to Redding, thence stage sixty-five miles. Board $1.50. Mountainous country.

Cottonwood. Bear, deer, quail, geese, ducks; salmon, trout, white fish. Reached via the Union Pacific Railroad. Board $1.50; guides $2; boats with boatmen $5.

Lower Soda Springs. Good fishing in the Sacramento and McCloud Rivers, Castle Lake, twelve miles distant, and salmon in some of the spring pools. Black tail and mule deer and mountain sheep, are found in summer on Mt. Shasta, and in winter at Sheep Rock. Black and brown bears, with California lions in the mountains. The valleys fifteen miles east, furnish fine deer and elk shooting. Quail are found in fair numbers. Reached via Redding, as above. Board at W. Bailey's $1.75, $8 per week; Indian guides $1.50 to $2; horse $1 to $1.50.

Southeren's Station. For game, route, etc., see Castle Rock. Fifty-four miles from Redding.

Allin's Station. For game, route, etc., see Castle Rock. Twenty-two miles from Redding.

Siskiyou County—

Soda Springs. Black and brown bear, black-tail, and mule deer, grouse, quail; brook and Dolly Varden trout, salmon and white fish. For route, see Castle Rock. Sixty-five miles from Redding. Hotel $1.75, $8 per week; saddle horses $1.50. Guides are necessary for the hunting and fishing grounds of the McCloud and Sacramento Rivers, Soda Creek and Castle Lake. Sisson's is eight miles distant, where all necessary outfits and supplies will be found. The country is mountainous, but not rough.

Coles. Deer, black, brown, and grizzly bears, panthers, mountain quail, grouse. Reached by stage from Redding, on the Oregon Division of the Central Pacific Railroad. Board $1.50, $7 per week. Country mountainous.

Berryvale, or Sisson's Station, at the base of Mt. Shasta. Black, brown and cinnamon bears, black tail and mule deer, mountain sheep, antelope, elk, jack rabbits, grouse, sage hens, quail; salmon and three varieties of trout. The game and fish in great abundance. Reached via stage, seventy-five miles from Redding, the terminus of the Oregon Division of the Central Pacific Railroad. Fare $7.50. J. H. Sisson keeps a sportsman's house, $1.50, $10 per week. For hunting expeditions, he furnishes saddle and pack horses, complete camping outfit, with guides and cook, and furnishes board. The expense per man, is about $5 per day. Excursions are made into the Klamath Basin for antelope and mountain sheep, and into Oregon for elk. This is also an excellent headquarters for fishing in the McCloud River.

Solano County—

Dixon. On the Sacramento River the sportsman will find geese, ducks, mallards, pin-tails, widgeons and teal, bitterns, cranes, snipe, curlew; quail in the foot-hills; fish abundant in Patch Creek. Reached via the California Pacific Railroad, sixty-five miles from San Francisco, twenty-one miles from Sacramento. Board $2, with boats free, guides $2, teams $5. The country is level prairie.

Fairfield. Ducks, geese, quail, and many varieties of wild fowl; trout, salmon. Reached via the California Pacific Railroad. Board $1.50 to $2, or $7 per week, guides and boats $3 to $5 per day. Country hilly and prairie.

Sonoma County—

Healdsburgh. Deer, bears, panthers, wild-cats, foxes, rabbits, hares, quail, grouse, and ducks of all varieties. Of fur-bearing animals, there are beavers, pine martens, minks, coons and grey squirrels. Salmon, salmon trout and mountain trout are abundant in the rivers and small streams. Take the San Francisco and North Pacific Railroad. Sylvester Scott, who lives twenty-five miles from Healdsburgh, is an old hunter and a good guide.

The Wachalla, on the coast, is a noted territory for deer and bears. Hunting is done chiefly with dogs, in the hot dry season.

Stanislaus County—

Oakdale. Cinnamon bear, quail, ducks, geese and other wild fowl; salmon and trout. Reached via Modesta, on the Central Pacific Railroad. Board $1.50; teams $5.

Tehama County—

Vina. Bears, deer, California lions, quail, geese, ducks, cranes and other water-fowl. Reached via the Oregon Division of the Central Pacific Railroad. Board $4 to $5 per week; teams $4; guides at reasonable rates. For the best sport, camping is necessary.

Tulare County—

Cross Creek. Bear, deer, antelope, grouse, quail, ducks and geese; salmon, trout, and other fish. Reached via Visalia Division of Central Pacific Railroad. Hotel $1 50; guides $3 to $5, with boats $5; teams $3 to $5. For good sport, camp out. Country prairie and mountains.

Tulare. Splendid duck and goose shooting on Lake Tulare. Every variety of these birds known on the coast, congregate here. Reached as above. The shooting is done over decoys, and from boats concealed in the tule, a broad belt of which surround the lake.

Ventura County—

Quail, ducks, and sand-hill cranes in great abundance. Deer shooting in the vicinity. Excellent salmon and trout fishing in Lake Merced.

Yolo County—

Knight's Landing. Deer, ducks, geese, rabbits, beavers; salmon, sturgeon, perch. Reached via the California Pacific Railroad. Hotel $1.50, teams $2 to $3.50. Country prairie, with mountains twenty miles east.

Yuba County—

Marysville. Ducks, geese, snipe, curlew, quail, hares and rabbits in great abundance; salmon, sturgeon and perch in Yuba and Feather Rivers, and Lake Como. Reached via the Oregon Division of the Central Pacific Railroad. Board at hotel $2.50; teams $6. Rolling country.

Wheatland. Wild geese, ducks, snipe, quail and other game. Reached as above. Hotel $1. Wheatland is in the Sacramento Valley, with the Sierra foothills seven to ten miles distant.

COLORADO.

Colorado has an area of 104,500 square miles with a population of 39,864. The State is traversed near its centre by the Rocky Mountains, which chain forms the watershed of the continent. The parks among these mountains are famed for their romantic scenery, and are taking their place among the popular summer resorts of the country. These mountains and parks abound in many varieties of large and small game, and the extensive plains and rolling prairies which make up the eastern and western portions of the State, are still the feeding grounds of the buffalo, antelope, and innumerable wild fowl. Colorado is rapidly developing her railroad facilities and access may be had to any part of the State where the sportsman will find abundant employment for both rod and gun.

Arapahoe County—

Denver. There are many inviting fields open to the sportsman about Denver. To the west, accessible by rail and wagon, are the Rocky Mountain Parks, abounding in many varieties of game. Sixteen miles from Denver on the South Park Railroad, at Morrison Springs, (Evergreen House) Beach Creek, offers excellent trouting. The Platte and Cache-la-Poudre, are also good fishing streams. Twenty miles up Cherry Creek, which flows through Denver, will be found great numbers of pinnated grouse, quail, and large jack rabbits. Still farther up this stream are grouse and ducks. Along the base of the mountains are deer and bears, and on the plains, to the west, antelope, elk and buffalo. Twenty miles south of Denver is Parker's, a favorite resort for shooting pinnated grouse. Here the game are found in gulches or water courses, and when routed out from these, are shot on the open prairie. Wild geese and turkeys are found in great numbers within a short drive from the town. Denver is reached via the

Union Pacific to Cheyenne, thence via the Denver Pacific Railroad, or via the Atchison, Topeka and Santa Fe Railroad to Pueblo, thence via the Denver and Rio Grande Road; or via the Kansas Pacific Railroad. There are several good hotels, $4; $21 to $25 per week.

Bent County—

Kit Carson. Large herds of antelope are found west of this town. Reached via the Kansas Pacific Railway.

Rocky Ford. A good hunting ground for antelope. Reached via the Atchison, Topeka and Santa Fe Railroad. The hunting grounds are high rolling prairie.

Boulder County—

Caribou. Good hunting, and fine trout fishing in the mountain streams. Reached from Denver via the Colorado Central Railroad to Boulder City, thence via good wagon road twenty miles.

Clear Creek County—

Georgetown. Game abounds in all the surrounding country. The Chicago Lakes eight miles distant, the Green Lakes and Grand River are all well stocked with trout. Reached from Denver via the Colorado Central Railroad to Floyd Hill, thence stage sixteen miles. Fare from Denver $7; round trip $11.50.

Costilla County—

San Louis Park and the surrounding country affords fine goose, duck, quail, mountain grouse and deer shooting. Reached via Denver and Rio Grande Railway, to Cucharas, thence stage.

El Paso County—

Manitou. In the vicinity are elk, bear, black-tail and other varieties of deer, bison and mountain sheep. It is one of the best trout centres of the Rocky Mountains, the season extending through July and August. Manitou is five miles from Colorada Springs station, on the Denver and Rio Grande Railway, and seventy-two miles south of Denver. The narrow-gauge cars take the traveler along at the rate of fifteen miles an hour, reaching Colorado Springs at noon. Thence a carriage is taken to the Springs. Here the Manitou House, and the Cliff House, and, two miles further on, the Tonic Springs Hotel—all having spacious walks, croquet grounds, drive ways, billiard halls, barber shops, and mineral baths—offer abundant comforts for guests. Charges $3.50 to $4.50 per day. Saddle-horses and carriages can be obtained to visit all the points of interest; also guides and pack animals to the summit of Pike's Peak, where the Government signal office is located.

Fremont County—

Canon City, one hundred and sixty miles from Denver, is the terminus of the Arkansas Valley branch of the Denver and Rio Grande Railroad, connecting with the main line at Pueblo; distance, forty-five miles. Trout abound in the mountain streams, and game is abundant. Fare from Denver $14, round trip $20.

Gilpin County—

Central City. Grizzly bears, buffaloes, elk, deer, antelope, jack rabbits, ducks, geese and grouse. Reached via the Colorado Central Railroad.

Rollinsville. Excellent trout fishing. Reached via Boulder Valley Railway from Denver to Boulder City, thence stage. Comfortable hotel, and many good camping points.

Grand County—

Hot Sulphur Springs is the objective point of the Middle Park of the Rocky Mountains. In addition to its charms for the pleasure seeker, this park offers, in the variety and abundance of its game, many attractions to the sportsman. All the game found in North Park, (which see) is here in equal quantity, and here as there, camping affords the best and most successful sport. Grand Lake, twenty-five miles from the Springs, contains large fish, with boats, etc., at hand. Game and brook trout are found in the country west of Middle Park, in unlimited numbers. The route to Hot Sulphur Springs is to Denver, as above, thence via the

Colorado Central Railroad to Central City, thence via Rollinsville and the Rollinsville wagon road over the Boulder Pass; or via Georgetown, and daily stage through the Berthoud Pass. Good hotels will be found here, with guides, teams, etc.

Jefferson County—

Morrison. See Denver.

Lake County—

Twin Lakes are beyond South Park, in the Arkansas range of mountains, and are becoming a favorite place of resort for fishing, hunting and boating. They can be easily reached from Colorado Springs—although mountainous all the way—by carriage, ambulance or stage. The lakes are upon the Lake Fork of the Arkansas River, one of the largest of its tributaries, which flows eastward from the summit of the lofty Saguache Range. This place is a great summer resort for the Denver people, who go with tents and all the conveniences for out-door life.

At the Twin Lakes the fishing is tolerably good, but the fish are small. Should a party fit out with a pack team when at the Twin Lakes, and follow the Arkansas River to its head at Tennessee Pass, and then strike the head waters of Eagle River, and follow it down until nearly opposite the mountain of the Holy Cross, they can catch trout to their hearts content, and probably kill some elk and mountain sheep. The trout of the Eagle River run large, and large flies or spinning tackle should be used to take them. Another party wishing to hunt grizzlies, can go by pack train from the lakes up Twin Lake Creek, about ten miles to the fork, and then follow the left branch of the creek to Elk Pass, where the Elk Mountains are crossed. From the Elk Mountains there is an old Ute trail going to Rock Creek and to the snow ranges of the Rocky Mountains, where grizzlies are common during the summer. There are trails leading to Rock Creek and Eagle River, which were made by the U. S. Geological Survey, under Dr. F. V. Hayden in 1873.

Granite. Good trout fishing in Twin Lakes, which see.

Larimer County—

Estes Park, eighty-four miles from Denver, via Boulder and Longmont, and thirty miles from Longmont, at the northeast foot of Long's Peak, is a beautiful basin of meadows and groves, with delightful hunting and fishing, where a week or a month of the later summer months can be spent very agreeably. Reached via the Colorado Central Railroad to the above stations.

Fort Collins is situated in Colorado Territory, on Cache le Poudre River, a clear, swift, never-failing stream, abounding in trout and other fish. Game is abundant in the vicinity. Reached from Cheyenne, or from Greeley, on the Denver and Pacific Railroad.

Las Animas County—

The western fourth of the county is mountainous, interspersed with valleys and mountain peaks. This section is covered with pine forests, and intersected by numerous mountain streams which abound with trout. The eastern three-fourths of the county is a series of table-lands, stretching from the mountains to the level plain. The principal wild game in this part of the country, are buffalo, antelope, beaver, otter, jack rabbits, etc. The mountains abound with different species of bear, immense droves of deer, turkeys and mountain grouse, and various animals hunted and trapped exclusively for their furs.

Sucarica Cañon, Cottonwood Cañon, and Tuckalote Cañon, all within a few miles of Dick's ranche, on the southern slope of the Ratorn Mountains, near the New Mexico boundary line, afford excellent shooting for deer, antelope, turkeys, bears, and other game. Take rail to Pueblo, and there fit out.

Trinidad. Fine antelope shooting east of the town, and through the county. Reached from Pueblo, via the Denver and Rio Grande Railway to El Moro, thence a short stage ride.

Pueblo County—

Pueblo, at the junction of the Atchison, Topeka and Santa Fe, and the Denver and Rio Grande Railroad, has rail and stage connections for all the best hunting grounds in Colorado and New Mexico. This is the headquarters where hunting parties fit out for the antelope plains to the east, and the Rocky Mountains to the

west. Buffalo, antelope, wolves, foxes, elk, deer of several varieties, mountain sheep, bears, and many other kinds of large game, with wild fowl of all descriptions, and excellent fishing are found within short distances from Pueblo. The sportsman cannot go amiss. Every thing necessary for camping out, horses, pack mules, guides, etc., will be found here.

Rio Grande County—

Del Norte. Deer, bear, wild ducks, grouse, and in the streams fine trouting. Reached from Denver via Denver and Rio Grande Railroad to Canon City, thence one hundred and forty miles by fine stage route, over a mountain road. Saddle horses or pack-mules, can here be obtained at reasonable prices.

Summit County—

The North Park is filled with a great variety and abundance of game, including black and cinnamon bears, elk, antelope, black-tail and white-tail deer, mountain lion, mountain sheep, woodland buffalo, or mountain bison, wild geese, ducks of several varieties, and four kinds of grouse, with excellent trout fishing in the mountain streams. The smaller fur-bearing animals are found here in great numbers. Go via the Union Pacific Railroad to Cheyenne or Laramie, and there fit out. Tents, pack horses, wagons, etc., will be found at either place.

CONNECTICUT.

Connecticut has an area of 4,674 square miles, with a population of 537,454. Though some portions of the State are rugged and hilly, there are no mountains properly speaking. The surface of the country is made up mostly of the valleys of the Housatonic, Connecticut and Thames Rivers, with their tributary streams. Railroads and fine wagon roads intersect every part of the State, and with the rivers furnish excellent travelling facilities. Owing to the dense population of this State, there are now very few of the larger and wilder animals, once abundant, though in most parts of the less thickly settled regions, small game is found in fair quantity. Along the bays and inlets of its southern shore, wild fowl are abundant, and always afford good sport.

Fairfield County—

Bridgeport. Blue-fishing in the harbor, and by taking rail to Stratford, good bass fishing may be found in the Housatonic River. Excellent duck shooting around Bridgeport, in the Harbor and on the Sound. Route: Boat from New York, or New York, New Haven and Hartford Railroad, fifty-seven miles from New York. Hotels: Sterling and Atlantic Houses, each, $3. See Stratford.

Stamford. Quail, partridge and woodcock shooting; fishing on the Sound. Route as above. Hotels: Stamford and Union Houses. The Ocean House, on the beach at Shippan Point, is a summer resort for New Yorkers.

Stratford, on the Housatonic River. Ruffed grouse, woodcock, quail, black duck and teal shooting. Good bass fishing, and the river has been stocked with California and Kennebec salmon. Route as above via rail. No hotel. Good quail and woodcock shooting around Fairfield and neighboring towns, but the grounds are pretty thoroughly posted.

Hartford County—

Hartland. Partridges afford good sport. Take the Canal Railroad from New Haven.

New Britain. Black bass of large size are caught in Shuttle Meadows pond, two miles from town. Route: Hartford, Providence and Fishkill Railroad.

East Glastonbury. The headwaters of Roaring Brook afford good trout fishing.

The Farmington River has been stocked with California salmon. Go via the Canal Railroad to *Farmington* or *Granby*, in both of which places there are hotels.

Danbury anglers resort to Lake Kenosha with its boating and excellent fishing. It is two miles from the village, reached by a pleasant drive. Danbury is on the Danbury and Norwalk, and the Housatonic Railroads. Two hotels.

Middlesex County—

Saybrook Point, at the mouth of the Connecticut River, furnishes excellent shooting for ducks, broadbills, red heads, black ducks and dippers. Reached by the Shore Line, or Connecticut Valley Railroad. There is a good hotel within forty rods of the depot.

East Hampton. Excellent black bass fishing in Lake Pocatsopogue whose waters have also been stocked with salmon. Reached via the New York and Boston Air Line. Buell's is a good stopping place.

Clinton. Woodcock, ruffed grouse, pickerel. Reached via the New York, New Haven and Hartford Railroad, twenty-three miles from New Haven.

Higganum. Salmon are taken in the Connecticut. Reached via the Connecticut Valley Railroad.

New Haven County—

Guilford. Duck and snipe shooting, and good fishing. Guilford is on the New York, New Haven and Hartford Railroad, sixteen miles from New Haven. Hotel, the Guilford House, and at Guilford Point several summer hotels.

Milford. Several trout streams in the vicinity, and a variety of fishing in the Sound. Route: New York, New Haven and Hartford Railroad. Hotel: the Milford House, $2. Charles Island with a small hotel, is a summer resort, and affords good fishing.

New Haven. On the East Haven marshes snipe abound. On the hills wild pigeons are found in their season, and quails also abound. On the ridge that joins the East and West Rock quails are found in considerable numbers, and on the West Haven side is a series of salt water flats that extend for several miles. These of course are much hunted. Savin Rock or Light House Point are within an hour's drive by carriage, and both afford good fishing, while by the Shore Line Railroad a few minutes ride by the early train will place the angler at Branford, Double Beach, Stony Creek, Guilford, the Thimble Islands, and other places long known as tip-top fishing grounds for black fish, sea bass, weak fish, lobsters, etc., and now provided with hotels and boarding houses of all classes and every style of pretension.

Stony Creek. Good duck shooting on the Shore Line Railroad. Guides and information can be obtained at Frink's Hotel. Several inexpensive hotels. For full information address Richard Payne or Henry Rogers. From the Indian Point hotel boats may be hired (25 to 50 cents) for the Thimble Islands.

The Thimble Islands. A resort that ought to be brought more generally to the notice of the people outside of Connecticut, is the "Thimble Islands," lying between New Haven and New London, and reached by the Shore Line Railroad from Stony Creek, Branford or Guilford stations. There are several hundred of these islands, with bold shores, and splendid sea fishing of all kinds convenient, offering greater variety and change of scenery than is usually afforded by any single pleasure resort. A cruise among these islands in a yacht gives perfect *dolce far niente.* The old Double Beach House, a famous resort for fifty years, the Branford Point House, and a dozen new ones, offer abundant hotel accommodation. Many of the islands are occupied by private cottages. The pleasantest way to reach the islands from points south of New York, is to take the New Haven steamboat line at Peck Slip, New York, at 11 P. M., sleep all night comfortably, and reach Stony Creek in time for breakfast.

West Meriden. Good snipe shooting. Reached via the New York, New Haven and Hartford Railroad, to Meriden.

Litchfield County—

Canaan. The Twin Lakes are fast growing into favor as a camping and picnic resort. On the mountain tops near at hand, are lakes as wild and much less

frequented than the Adirondacks or Maine lakes, and abundantly stocked with fish and game.

The "Twins"—"Waushinee" and "Waushining"—are on the Connecticut Western Railroad, twelve miles east of Millerton, which is on the Harlem road, and fifty-seven miles west from Hartford. They are on high ground, and held in place by a range of hills. The Twins are "siamesed" together by a narrow, crooked strait, that is barely navigable in low water. Both lakes are well stocked with the fish usually found in this region, and vast quantities of pickerel and perch are taken from the smaller lake during the winter. The large lake—some six miles in circuit—has long been famous for its fine pike (pickerel they are called hereabouts), fish of five to seven pounds weight being not unusual in the bygone days; but since the stocking of the waters with black bass, some years since, the pike are not so plenty nor so large. The abundant supply of bass, however, more than makes up for it, and during the summer affords rare sport to those experts who know the when and the how to take them. The lakes have also been stocked with land locked salmon. Close around this lake region are numerous trout streams, which afford the angler fine sport; notably More Brook and Bracie's brook, in Salisbury, and Bartholomew, Spurr, and Lee brooks, in Sheffield, and the Sages' Ravine brook, that divides the two States. These streams are hardly large enough for the fly-fisher's best efforts, though trout of two pounds weight, have been taken from the Lee brook, and very good creels full in Sages' Ravine and the More Brook.

The game in the neighborhood comprises grouse, woodcock, quail, squirrels, and rabbits, mink and otter, fox, wild-cat, and woodchucks. Of ducks there are the broad-bill, shell drake, whistler, buffle-head, brant, black duck, and in short nearly every kind found on any fresh water, and in great abundance; wild geese are here in great numbers, and quail, woodcock and pigeons in sufficient quantities to insure good sport. From New York City via Harlem and Connecticut Railroads, the fare is $2.80. Board at the Twin Lakes Trout Farm, Corbin's Union Depot Hotel, and at Salisbury, which see.

Chapinville. Good bass fishing. Route: Connecticut Western Railroad from Hartford.

Kent. The Spectacle Ponds are two lakes amid the forest on a high plain to the west, and reached by a steep road. These waters have been stocked with land locked salmon. Reached via the Housatonic Railroad from Bridgeport or Pittsfield. Hotel, the Kent Plains House.

New Milford. Fine black bass fishing in the Housatonic River. Route as above. Hotel, the New Milford House.

Salisbury. For game and fish see Canaan. The Twin Lakes are six miles distant, reached via a good wagon road. Route: from Hartford via the Connecticut Western. Hotels, Barnard House $2; and a large summer boarding house.

West Norfolk. Trouting in the vicinity. Route as above.

Winsted. Some distance above the village on a high plateau, is Long Lake, which has been stocked with land locked salmon. Route: Naugatuck Railroad from Bridgeport; fare $1.85; or Connecticut Western Railroad from Hartford. Hotels, Clarke House $2; Beardsley House.

Litchfield is one of the favorite quiet and unfashionable summer resorts of the State. Bantam Lake, reached by a pleasant drive, is a beautiful sheet of water, full of many kinds of fish, and is much visited by the summer tourists and pleasure seekers who resort to Litchfield. Take the Naugatuck Railroad from Bridgeport.

New London County—

Niantic. The striped bass in the river afford excellent sport. The fishing at this point is the more attractive, as it is done from a bridge not twenty yards from the hotel, on the flood tide, and from below the railroad bridge at the ebb, and by trawling at night. The current is very rapid, and from the bridge, the line sweeps the whole width of the river at this point of the channel. The hotel is comfortable, and the fishing ground within call of the dinner-bell. Blood Point, one mile from Niantic, is a famous resort for fishing for large striped bass. Niantic is six miles from New London, is reached from East Lyme, and is one mile from that place. The Niantic River, two-and-a-half miles long, connects the bay with a lake which receives the waters of several fine trout streams, so that the river and bay form a natural breeding and spawning ground for bass. There are two hotels, one at Block Point on the East Lyme side, and the other on the opposite side of the river at Bloody Point. Niantic Bay is three miles wide, and

has a depth of three fathoms. In the channel below the railroad bridge it is five fathoms. A small fish known as mummychugs is used for bait.

Norwich. Fly fishing for shad at Greenville Dam, one mile above Norwich, on the Shetucket River. Dace and bony fish are also caught there, and the river has been stocked with California and Kennebec salmon. Reached via the New York and New England, or the New London Northern Railroads. Hotels $2.50, $3 and less.

New London. Good striped bass fishing at Rope Ferry, on the Niantic River, and a variety of fishing on the Sound. Reached via steamboat or rail from New York and Boston.

Noank, a little village midway between New London and Stonington, furnishes excellent fishing for mackerel, blue fish, tautog, flounders, porgies and squeteague, or weak fish, locally known as yellow-fins. The principal fishing ground is Block Island Sound. Good duck shooting may be had in season.

Tolland. Skungaurong, Snipsie, Square and Bolton Pond, all within an hour's drive, afford as good boats and as good pond fishing as can be had at any point in the State. Woodcock and snipe are in fair abundance. Route Central Vermont Railroad.

Windham County—

Brooklyn. Quail, ruffed grouse and woodcock. Take the New York and New England Railroad to Danielsonville, thence a drive of four miles. Hotel, the Putnam House.

Woodstock. One mile from the village is Woodstock Lake, where there is good boating and fishing. Woodstock is a quiet country town with one hotel, where the stranger will find comfortable accommodations. Take the New York and New England Railroad to Putnam, thence five miles via stage or hired conveyance.

DAKOTA.

The territory is divided into two nearly equal parts by the Missouri River, which flows through it from northwest to southeast. The surface of the country north and east of the river is broken up by many lakes, some of them of large size, and all abounding in fish and game. From the southwest, there are a series of gradually rising plateaus, extending west to the Black Hills, and the Rocky Mountain spurs. The first of these plateaus is the Coteau des Prairies, west of this the Coteau de Missouri; north is the valley of the Red River, and west of this another plateau, extending to the Rocky Mountains. These plains are diversified by occasional lofty buttes, and deep cañons. In the south and southwestern part of the territory, are the Bad Lands, sterile plains of blue clay land. The plateaus and mountains are full of game, including the larger species common in the west, with all the wild fowl and fish usually found in the neighboring States and territories. The country is thinly settled, and the game consequently for the most part undisturbed. The North Pacific and Central Pacific Railroads and the Missouri River, are the principal lines of access to the Territory. The population is confined to the eastern and southern borders, and the line of the

Northern Pacific Road. The interior is uninhabited, or occupied by hostile Indian tribes, and travelling without armed escourt consequently dangerous.

Black Hills. As a game region, the Black Hills will compare very favorably with any locality in the country. Deer of two species are most abundant, the white-tailed and the mule deer. Elk are numerous, grizzly bears, mountain sheep, cougar, wild-cat, Canada lynx, grey wolf, and coyote, are common. The kit fox, or swift, is abundant on the plains. The mink, otter and badger are abundant on the rivers flowing into the Missouri, and squirrels, gophers, woodchucks and muskrats are common on the plains. The beaver builds its dams in all the streams. Game birds are well represented by several species of geese and ducks, which are to be found along the various water courses in and about the Hills, and by at least two species of grouse, the sharp-tailed and the ruffed. The former are numerous along the open valleys and in the sparsely-wooded hill-sides, and the latter among the dense pines of the higher land. Altogether, the Black Hills offer to the sportsman an abundance and variety of game, and since opened to the white man, are as much esteemed as a hunting-ground by him, as formerly by the Indian.

From the north there are routes from Bismark, Fort Pierre and Brule City to the northern and northwestern parts of the Hills. From the east there are trails from Yankton, Sioux City and Kearney Junction. There are three routes from the south; from North Platte and Sidney in Nebraska, and from Cheyenne, Wyoming; and one from the west, by the way of Whisky Gap and Independence Rock.

The route from Cheyenne is said to be the safest, and preferable to the others.

Crystal Springs is a fine ground for ducks, geese, swans, etc. A station on the Northern Pacific Railroad, sixty-four miles east of Bismark. The lakes and sloughs are all shallow, with hard bottoms. A boat is unnecessary, as the hunter can walk through the rice and rushes.

Barnes County—

Worthington, on the Northern Pacific Railroad. There are a few buffalo, with plenty of elk, antelope, wolves, jack rabbits and other game. The country is rolling prairie.

Burleigh County—

Bismark, on the Northern Pacific Railroad, is an excellent point for sportsmen to make their headquarters. In the surrounding country will be found buffalo, large droves of elk and antelope, black-tail deer in abundance, and unlimited numbers of swans, brant, geese, ducks, plover, snipe and pinnated grouse.

Cass County—

Fargo. Buffalo, black bear, elk, black-tail deer, antelope, canvas-backs, mallards, blue and green-winged teal, widgeons, and red-head ducks, brant, Canada geese, swans, pelicans, snipe, curlew, upland and golden plover, ruffed and pinnated grouse. Fargo is on the Northern Pacific Railroad, and is the point of departure of the Red River steamers. The sportsman will find good accommodations at the Headquarters Hotel. From Fargo, for two hundred and fifty miles out to the Missouri, the country is mostly open rolling prairie. Rivers and lakes are comparatively rare, but when found, abound in fish and attract great quantities of game to their wooded shores. Antelope, elk, wolves, jack rabbits, and other game abound. Buffalo are rare, as hostile Indians beyond the Missouri watch the fords jealously to prevent their crossing.

Charles Mix County—

White Swan. Black-tail deer; antelope are plenty on the Bijou Hills, forty-five miles up the river.

Stutsman County—

Jamestown. Elk, antelope, wolves, jack rabbits and other game in abundance, with buffalo occasionally. Rolling prairie.

DELAWARE.

This State occupies the eastern portion of the peninsula which lies between the Delaware Bay and the Atlantic Ocean on the east, and the Chesapeake Bay on the west. The greatest length of the State is ninety-six miles, the breadth thirty-seven, the whole area 2,120, and the population 125,000. The surface is hilly and rolling in the northern part, and level in the central and southern portions. The coast is indented by numerous bays and inlets, which are the resort of great numbers of wild-fowl, and are easily reached by the Delaware railroads and their branches, or by the different lines of steamboats plying on the Bay.

Kent County—

Bombay Hook. Logan's Hotel is a well-known resort for gunners. Bay and beach birds are here found in abundance. Reached from Dover, which is on the Philadelphia, Wilmington and Baltimore Railroad, or via boat from Philadelphia.

Kitshannock, nine miles from Dover, is a well-known place for bay and beach bird shooting. A good hotel here.

Little Creek Landing. On Little Creek is to be found woodcock, quail, snipe and other duck shooting. A few miles from Dover, which is on the Philadelphia, Wilmington and Baltimore Railroad. Hotel at Dover, the Capitol House.

Smyrna. Quail and snipe shooting. Reached via Philadelphia, Wilmington and Baltimore Railroad. Two hotels, the Delaware and the Smyrna.

Dover. On the creeks near the city are woodcock, quail, snipe, ducks and wild-fowl of several varieties.

Near *Milford*, are the popular sportsmen's resorts, Thorn Point and Doctor's Island, which are annually visited by gunners. The Milford House furnishes comfortable accommodations. Reached via the Junction and Breakwater Railroad.

New Castle County—

Delaware City. Woodcock, quail and snipe on the Dragon Marshes. Reached via the Pennsylvania and Delaware Railroad.

Port Penn. On the marshes are snipe, and excellent rail shooting.

Sussex County—

Lewes, on Lewes Creek and Delaware Bay, affords excellent bay-bird and wild-fowl shooting, with fresh and salt water fishing. Terrapins, rock-fish, perch, eels, and near the Breakwater, large numbers of black fish and flounders. The route is via the Junction and Breakwater Railroad. The Atlantic House and the United States House afford comfortable accommodations.

Rehoboth Beach, a few miles south of Lewes, is a summer resort for Delaware people, and there the visitor will find home-like hotels, with fishing and shooting in the neighborhood.

DISTRICT OF COLUMBIA.

The District of Columbia, with the adjoining counties of Maryland and Virginia, is one of the best game bird and fish centres in the country. Dr. Coues has found two hundred and twenty-six different varieties of birds there. Ducks, geese, snipe, woodcock,

wild turkeys, ruffed grouse, quail, reed birds, wild pigeons, etc., can be obtained in greater quantities here, than at much-talked-of places hundreds of miles further off, and scarcely accessible.

Washington. There are hundreds of places on the Potomac, within two or three hours' drive of Washington, where black bass and perch are abundant, and where the rarest sport is afforded. The Little Falls, Dam No. 7, and the basin above it, Stubblefield Falls, the Great Falls, and many other places between Washington and the latter point, are celebrated for good fishing. Duck and snipe shooting, and on the marshes in the vicinity of the city are reed birds, black-birds, ortolans, jack snipe, stiff-tails, and canvas-back ducks.

Marlborough Point is the best place in the vicinity for quail, or for bar shooting for mallard ducks.

On the eastern branch near the vicinity of Benning's Bridge, is a locality for plover, mallard, sprig-tail and teal ducks, and reed birds.

Black Bass Fishing in the Reservoirs. Connected with the aqueduct which supplies the cities of Washington and Georgetown with Potomac water, are two immense reservoirs, one of which is known as the receiving reservoir, and the other as the distributing reservoir. The first is used for the storage of water to supply the city in case of a freshet in the river, or when the water continues muddy for any length of time; and the other, located at the head of the pipe line, supplies the various mains leading to the two cities. Both of these reservoirs are filled with black bass. The receiving reservoir was first completed and filled with water. It has been in use about fifteen years, and during that time the bass have increased and multiplied therein with great rapidity; besides the supply is annually increased by the young ones, which come down the conduit from the Falls, and easily get through the wire screens into the reservoir, on account of their diminutive size. Many now in the waters of the reservoir, have been there twelve or fourteen years, and in that time have attained a weight of from four to five pounds. This reservoir covers an area of forty-four acres, and varies in depth from two to fifty feet. The presence of fish in the reservoirs was long a disputed question, but is now generally admitted that they are beneficial to the water, as they feed upon the animalculæ, and to a great extent clear it of insects and vegetable matter, washed therein by rains from the surrounding hills, which are cultivated. Some years since it was noticed in the spring, that the water had a fetid taste and smell, and it was then argued that its offensiveness proceeded from fish in a state of decomposition in the reservoirs or pipes leading to the city. Other water-works in different parts of the country had the same trouble, and the subject was scientifically investigated. The generally received opinion now is, that it arises from the confervæ, which, under favorable circumstances, are generated in all reservoirs.

The bait used for bass in these waters is live minnows, frogs, and crawfish. They never rise to a fly in the still water of the reservoirs, though they often take it in the Potomac in places where rocks abound, forming rapids and eddies. The bass undoubtedly spawn in the reservoirs, and for that purpose seek the head-waters in the spring, where it is not so deep. As warm weather approaches they return to the deep water. Fish are frequently taken, weighing from two to three pounds, and when a bass of that size is hooked in water fifteen or twenty feet deep, with no rocks, grass, or snags to catch the line, he affords delightful sport. Their favorite feeding time is early morning. Trolling for them with minnow for bait, is often very successful in these reservoirs, especially in August and September. A permit from the aqueduct authorities is necessary, to enjoy the privilege of fishing in these waters, but the courteous gentlemen who have charge of the work, never refuse such permission to gentlemen whom they know will not abuse the privilege.

FLORIDA.

Florida has an area of 59,268 square miles, and a population of 187,748. The country is level throughout the State, with the exception of between the Suwannee and Apalachicola Rivers

where the hills are of inconsiderable height. In the southern part of the State, a wide stretch of country known as the Everglades, is annually submerged, and north of this country, the elevation does not exceed two hundred feet. Florida is well supplied with harbors and bays, especially upon the Gulf; the whole extent of her coast line is 1,150 miles. The St. John's, Apalachicola and other rivers, with their numerous tributaries, and the many lakes connected with them, form a system of water communication with the greater part of the inland. The northern and eastern counties are also accessible by railroads, and new roads are being constructed as the development of the country demands them. Florida has vast forests of pine and live oak, dense swamps, canebrakes and prairie lands. The greater part of the State is unsettled, much of it has never been disturbed by the settler, and here the sportsman will find game in all its primitive abundance, including the varieties here mentioned :—

Animals.—Panther, common in all the unsettled parts of the State, lynx, abundant and do.; grey wolf, some nearly black, not common; grey fox, common; raccoon, very abundant; common bear do; red deer abundant but very small; southern fox squirrel, abundant, confined to pine woods, affords fine sport; grey squirrel very abundant and very tame; grey rabbit, marsh rabbit, and opossum, very common.

Birds.— Wild turkey, quail, kill-deer, plover, Wilson plover, piping plover, golden and black belly, very numerous; woodcock, not very abundant; snipe very numerous, fly in large flocks and cover the whole country; red-breasted snipe very numerous; willet, yellow legs, and godwit, very common; Hudson curlew and Esquimaux, rare; long-billed curlew abundant; black-neck stilt, rails, galannules, herons, cranes and ibis, all common.

Ducks, Geese, etc.—Mallard, very abundant; black duck, common; pin-tail, green-winged teal, blue-winged teal, blue-winged shoveller, wood duck, scaup duck, red-head, all abundant; bald pate, canvas back, butter ball, ruddy duck, all common; hooded meganser, abundant; Canada goose, common in western Florida.

Fish.—Sheepshead, red-fish or channel bass, salt water trout, drum, whiting, red-snapper, or grouper, black grouper, cobia, pompano, cavalli, black fish, or sea bass, hog fish, croaker, black grunt, skip jack, mullet, salt water catfish, shark, gar fish, or (saw fish), angel fish, ray, skate, torpedo fish, great ray or devil fish. The fresh water fish are the black trout, or bass, yellow perch, sunfish, blue bream, red-bellied perch, goggle-eyed perch.

Brevard County—

Fort Capron, at Indian River Inlet, is an excellent point for the hunter or fisherman. There are red fish, red snapper, sheepshead, cavalli, red trout, sea mullet, pompano, Jew fish and tarpon, with other varieties, and a good game country in the interior. Good board can be found at Captain Payne's. A short distance

from Capron is *Fort Pierce*, an excellent camping ground where the same sport may be had. For route to both these points, see New Smyrna, Volusia County. See also Titusville.

Clay County—

Magnolia. Black Creek is a navigable stream for fishermen and sportsmen. On a sunny day its banks are lined with alligators, while fish and game of all descriptions are plentiful. A regular landing for St. John's River steamboats. Hotel, $5.

Columbia County—

Lake City. Deer, wild turkeys, ducks, quail; trout, bream, speckled bream. Reached via the Jacksonville, Pensacola and Mobile Railroad. Board $25 to $30 per month; guides $1 to $1.25; teams $3 to $5.

The Gulf Counties—

In all the counties along the Gulf of Mexico, and in nearly all the heavily timbered lands in the others, are to be found all kinds of game, such as bear, deer wild turkeys, panthers, catamounts, wild cats, etc. Deer and turkey are abundant. In all the lakes, rivers, and creeks are an abundance of fish, such as trout, perch, jack or hake, catfish, black fish, bream, etc. On the coast there are the finest of oysters, clams, turtle, and every variety of salt water fish. During the winter all the lakes, ponds, bays, inlets, rivers, etc., have an abundance of every variety of water fowl. Sportsmen should visit Middle Florida by all means and take a hunt and a fish down on the coast.

Escambia County—

This is one of the best sporting counties in West Florida. On the Perdido, Black Water, Escambia, East Bay, and Choctawhatchee Rivers, and on Palmetto, Soldier, St. Johns, and Stone Quarry creeks, on the Grand Lagoon, Bear and Deer Points, and on Bayous Grande, Checo, Texar, Marquis, Garcon and Tarkill, all within a few hours' sail of Pensacola and the Navy Yard, can be found excellent fish in many varieties, with deer, bear, turkey, squirrel, etc. Within five miles of the Navy Yard any quantity of game can be obtained. The Grand Lagoon furnishes fine duck shooting all the year. The summer or wood duck remains the entire year, and in the fall and winter it is visited by great numbers of Mallard or English duck, red-heads, blackwing teal, wood duck, large crested, widgeon or bald heads, bull heads, sawbills, black ducks, gadwalls, and the wild goose and swan. In the spring the sprig-tail or pin-tail, spoon-bill or shoveler and the blackwing teal. The latter come in great clouds and linger until late in May. They usually feed in shallow water along the shore, and are often found in great numbers on the beach, which affords the stealthy gunner a capital chance to slaughter them by the wholesale. In what is known as the Live Oak Reservation, are deer, bears, and wild turkeys in great numbers. The fishing is for bluefish, pompano, Spanish mackerel, sheepshead, cavalli, sea trout, channel bass, red snappers, and groupers. Reached via steamer from New Orleans, St. Mark's and other points, and via Pensacola Railroad, connecting at Junction with Mobile and Montgomery Railroad. Board $20 per month.

Duval County—

Jacksonville. Excursions go out to the fishing banks off the St. John's bar, where large snappers and black fish are caught.

As a place from which one may reach the most attractive portions of the State, Jacksonville should be selected. Situated upon the St. John's, it has steam communication with every settlement upon that interesting river, and with St. Augustine, New Smyrna and Indian River, upon the coast. It has direct rail connection with Tallahassee, the capital of the State, with Cedar Keys upon the west coast, and thence with all the gulf ports, the Keys and Cuba, and with Savannah, via the old circuitous route, and a more direct new one. Here the camper-out should procure his outfit, except tent.

From Jacksonville to Enterprise, two hundred miles up the St. John's, the fare by steamer is $12, and of proportionable price to intervening landings. To Salt Lake, the farthest point reached by steamers, (curious stern-wheelers), it is about $6 more; all freight at the rate of about $1 per barrel; a small boat up the St. John's pays $5 for passage upon the steamers. Indian River, the great game sec-

tion, is reached via Salt Lake, from the St. John's, the distance across land at that point being but six miles.

Franklin County—

Apalachicola. Curlew, plover, snipe, rail, quail, ducks and geese. At Green Point and Topsil-bluff, three miles distant, is good deer hunting. The slough fifty miles up the river, reached by steamer, is an excellent hunting ground for many kinds of game. Transportation of small boats to this point, $2. Board at moderate rates, and dogs for deer hunting can be obtained at Apalachicola. Reached via steamer from St. Mark's, and other points.

Gadsden County—

Chattahoochee. Deer, beaver, fox and grey squirrels, raccoons, opossums, wild turkeys; ducks, quail; trout, speckled perch, and other varieties of fish. The best fishing is at Fish Lake, two miles from the depot. The route is via the Jacksonville, Pensacola and Mobile Railroad. Board $2 to $2.50; guides $0.75 to $1.50; boats at reasonable rates.

Quincy. Bears, deer, wild turkeys, ducks, ruffed grouse, woodcock, small game in abundance; trout, rock fish, bream, and several varieties of perch. Route as above. Board $1 to $3; teams $3 to $4; guides and boats can be secured when necessary.

Hamilton County—

Jasper. Bears, deer, wild hogs, turkeys, ducks, geese, ruffed grouse, snipe, and many other varieties of birds, with small game, and excellent fishing. Reached via the Atlantic and Gulf Railroad. Hotels and private board $15 per week: teams $3. Country undulating pine and hammock lands.

Hillsborough County—

At *Boca Ciega Bay*, Mr. Murphy's youngest son is a good boatman, and a reliable guide to the game districts of the neighborhood.

Tampa. For the piscator, Tampa does not present many inducements. A few miles up the Hillsborough river, fair trout fishing can be obtained, and about the docks and in the channel, passable sheepsheading will be found. By taking a row or sail boat, and proceeding to the oyster bar, nine miles down the bay, superior sheepshead and drum fishing can be enjoyed. There are several good boarding houses here. Reached via steamer from Cedar Keys, which see.

Jefferson County—

Monticello. Bear, deer, wild turkey, quail, ducks; black bass, trout, bream, perch, with other varieties of game and fish. Reached via Jacksonville, Pensacola and Mobile Railroad. Hotel $2 to $3; private board $1.50 to $2; guides $1; boat 50 cts; teams $6.

Leon County—

Tallahassee. The fields are full of quail. In the neighborhood are many small lakes, in which ducks, geese, brant, and other wild fowl are plentiful. At Lakes Lafayette and Jackson, six miles distant, and some miles in extent, there is good fishing as well as shooting. About two miles from town, and on a high hill, which lies among several small lakes, is a favorite resort for duck-shooters—as the birds are continually passing and repassing from lake to lake. There is abundance of accommodation in the city, and the sportsman will receive all necessary information and assistance. Horses and vehicles are readily obtained. Deer and wild turkeys are killed within a few miles of the town.

St. Mark's, but an hour's ride from the city, by rail, is on the Gulf; and the fishing and wild fowl shooting is of the best. Boats and assistants are easily had.

Levy County—

Bronson. In the neighborhood, deer, turkeys, brant, duck, and quail can be found in abundance. Chunky Pond is distant from the village about two miles; it is about two miles long and one wide, connecting with a number of smaller ponds, which extend for a distance of about nine miles. These ponds contain bream and trout (bass) in endless numbers—the latter ranging from one to fifteen pounds. Bronson is on the Fernandina and Cedar Keys Railroad, thirty miles from Cedar

Keys. Board can be obtained for $7 per week; guides for fishing and hunting can always be found.

Cedar Keys is the terminus of the Atlantic and Gulf and West India Road. Ducks, geese, deer and wild turkeys are found in the vicinity. From the railroad dock, sea trout (weak fish) ranging from two to six pounds, sea bass and porgies can be caught with cut bait, and sheepshead with fiddlers. On the points and about the reefs a few miles from town, superior red and grouper fishing can be obtained at Cedar Keys. The sportsman will find unbounded hospitality and courteous attention on the part of the inhabitants. From this point the tourist may take steamship to New Orleans, Tampa, Punta Rassa, Key West, or Havana. For the purpose of cruising along the coast, or general sporting purposes, suitable boats with experienced sailing masters can be engaged at from four to six dollars per day.

Rosewood. In the hammock are bears, deer, and turkeys in great abundance. Reached via the Fernandina and Cedar Keys Railroad. Mr. Ford keeps a good sportsman's house.

Hernando County—

Anclote. In the river of the same name are red fish, sheepshead, tarpum, with excellent snipe, curlew, coot and duck shooting. Reached by boat from Bayport.

Bayport. The country back of Bayport is well stocked with bear and deer, and there the sportsman may secure some excellent sport. The section referred to can be reached by land, by taking stage from Gainesville, or by leaving Ockawaha steamers at Silver Spring; conveyance to Ocala and stage from Ocala to Brooksville. At the latter place a vehicle of some description can be obtained, by which Bayport, distant thirty miles, can be reached. The tourist will find the neighborhood of Brooksville an interesting locality. The immediate neighborhood is hilly, some of the highest points attaining an altitude of over four hundred feet. In the neighborhood the sportsman will find some crystal lakes, surrounded by hills, where he can catch trout and bream.

Brooksville, see above.

In the *Cheeschowiska River*, ten miles from Bayport, are found sheepshead, cavalli, bream, trout, and red and black groupers. Reached by boat from Bayport, or from Homosassa.

Homosassa. In the river and spring are sheepshead, red fish, cavalli, channel bass, weak fish, red and black groupers, bream, snappers, skip jacks, sea trout and large snapping turtles. Around the basin and along the banks of the river, are large numbers of water turkeys, many varieties of sea birds, and ducks in great abundance. In the woods and hammocks are bears, deer, turkeys, and other game. There are two routes to Homosassa—one via Savannah, Fernandina, or Jacksonville to Cedar Keys, and the other via Silver Spring and Ocala. The sportsman can easily ascertain upon what day he will reach Cedar Keys, and by addressing Alfred E. Jones, Homosassa, Fla., in advance of the day of arrival, Mr. J. will be found at the Keys with a boat to transport visitors to his place free of charge. If unable to communicate with Mr. J. a suitable boat may be chartered at Cedar Keys for about $10 for the trip, thirty miles. If the sportsman is desirous of visiting an interesting and attractive portion of the State, he can take steamer from Jacksonville to Silver Spring, and back from the Spring to Ocala, via stage, a distance of six miles. From Ocala to Homosassa, the distance is forty miles over a fair road, and E. J. Harris, of the Ocala House, will make the necessary arrangements for transportation of visitors to the hospitable ingleside of A. E. Jones, where will be found excellent accommodations, at moderate prices. No place in the State presents so many attractions for the sportsman, if we take into consideration the sporting advantages in connection with home comforts, excellent accommodations, superior table, perfect cleanliness, and an admirable climate. Sportsmen who wish to enjoy themselves, and at the same time be accompanied by their wives, will find this place to offer many attractions. If a stag party of from two to four wish to enjoy themselves for a few weeks or months, we would recommend them to engage Liberty Hall—from $10 to $12 per week. Visitors will find an ample supply of boats, and for a trifling charge negroes living on the plantation will keep the piscator supplied with bait. There is also a good pair of hounds for deer hunting. The sportsman should provide a strong bass rod, and an assortment of flies, hooks and lines, with large sized spoon for trolling. Mr. Jones is the Postmaster, and the place is provided with a weekly mail.

Madison County—

Madison. Bear, deer, wild turkeys; trout, perch; with other varieties of game and fish. Reached via the Jacksonville, Pensacola and Mobile Railroad. Board $2.50; guides 75 cents to $1; teams $2 to $4; boats free. Country rolling and prairie.

Ellaville. Bear, deer, wild turkey, quail. Reached via the Jacksonville, Pensacola and Mobile Railroad. Board $1.50 to $2.50 per day; teams $2

Marion County—

The Ocklawaha River. The game once very abundant has been much depleted by wanton destruction. There are still found in fair numbers limpkins, water-turkeys, herons, painted gallenells, coots, eagles. The black bass fishing is good, and alligators numerous. The river is reached by regular steamer.

Monroe County—

Between the Caloosatchie River and the Big Cypress Swamp and the Everglades, is a country unsurpassed for game. Deer, wild turkeys, ducks and quail are very abundant. In the waters, good cavalli and other fishing. This country is reached via rail to Cedar Keys, thence boat to the Caloosatchie River. For the best sport, provide tent, boat, and camping equipments. A light wagon with mules is also desirable and can be procured at Manatee. The country is open and the land firm. A horse at full speed can be ridden almost anywhere without roads or paths.

Nassau County—

Fernandina. Deer, duck, rail and snipe. Reached via steamer from New York, Charleston, and Savannah, and by rail from Jacksonville, and Key West. The Mansion House affords good accommodations. M. W. Downie, proprietor.

Manatee County—

Charlotte Harbor—Bird Key, one mile west of Useppi, is a small island consisting of about forty acres and covered with large mangrove trees. It is the roosting place for the multitudes of birds that frequent Charlotte Harbor. On the island will be found pelicans, ganet, cormorants, water turkeys, cranes and herons of all kinds, sizes and descriptions. A person desirous of collecting ornithological specimens would find this a desirable locality.

Gasparilla Island. The Inlet, at the northern end of this island, teems with red fish ranging from five to twenty pounds, cavalli, weak fish, bone fish, grunts, or red and black grouper of large size. Inside the inner point sheepsheading is excellent, the fish ranging from one to five pounds. With a stout nine foot rod and three hooks baited with fiddlers, from one to three sheepshead can be captured at almost every cast. The water is very clear, and the bottom a white shell bank, and the fish are visible in dozens slowly swimming along in search of food. Fiddlers of large size can be secured in quantity for bait on most of the sandy keys. If placed in an ordinary wooden pail they will live for many days. Red and other fish will readily take cut fish bait, but seem to prefer minnows.

All the larger islands in the vicinity are stocked with deer, and on most of them dogs are unnecessary; still-hunting is preferable. Coons in immense numbers exist on these islands and their tracks are visible everywhere near the bay beaches. On the mud flats thousands of snipe and curlews can be seen at any time, apparently waiting to be destroyed. In the centre of the island the sportsman will find a large fresh water lagoon where excellent water can be obtained. The invalid who is piscatorially inclined, and who desires an excellent climate, should spend a few weeks or months on the northern end of Little Gasparilla. The air is pure, water excellent, frost absent, sea-bathing unequalled, fishing beyond description, deer plentiful on the island and on the main land.

Peace Creek is navigable for eighty miles, and on its banks is fine deer and turkey hunting. Myakka River is full of alligators.

Egmont. Eugene Coons, son of the light-house keeper, is a good pilot and guide for the game localities of any part of the Western and Southern coast of Florida. His schooner can be chartered for an excursion, and under his pilotage the trip is pleasant for ladies as well as gentlemen.

The South-eastern Hunting District. Southwest of Lake Okechobee, nearly to the shore of Charlotte Harbor, and from the Caloosahatchie River to Peace Creek, a distance of sixty miles, the sportsman will find a beautiful prairie,

clothed with luxuriant and nutritious grasses different from those of the St. John's and Atlantic sections. This vast expanse of hunting ground is dotted with "islands," that is to say, spots clothed with live oaks and palms. These islands vary from a few square rods to fifty acres, and here and there will be found small belts of pine timber, the islands and belts furnishing ample shelter for game. This section is unequaled by any portion of the United States for deer hunting or turkey shooting. In crossing the prairie from New Fort Centre large herds of deer are frequently visible on each side of the trail. Owing to the inequality of the surface, and the protection afforded by the tall grass and patches of saw palmetto, the game can be approached without difficulty. Since the removal of the majority of the Seminoles, deer have roamed and increased on the prairie undisturbed. With the exception of the few annually destroyed in the neighborhood of Fort Thompson, they are unmolested, the grasses are nutritious, climatic conditions favorable, and, as a consequence, the amount of deer in this section is fabulous. This locality is truly the hunter's paradise, and if he desires variety, he will find numberless turkeys on the banks of the creek or in the adjoining islands; or if disposed to indulge in fishing, all that will be necessary is to use a bob, spinner, or fly, and he will soon tire of landing the largest and fattest trout in the State. On the rivers and lakes, ducks, coots, yellow-legged snipe, curlews, cranes, herons, water turkeys, and other birds exist in countless numbers.

If any one should contemplate a visit to this region we would recommend as a site for his camp a point on the creek ten or fifteen miles west of New Fort Centre. To reach this locality the sportsman can take steamer to Charleston, Savannah, or Fernandina, and railroad to Cedar Keys; or steamer from New York to Key West. Punta Rassa can be reached from Cedar Keys or Key West by steamer, sailing weekly. From Punta Rassa sportsmen can ascend the river to Fort Thompson, or take a bullock dray from Fort Myers. Mr. Carlton resides two miles north of Fort Thompson, and for $5 per day will furnish a conveyance to the creek. To find Mr. C.'s residence after reaching the fort, land on the west side of the river below the rapids, thence a northerly course must be kept, leaving the river to the right and the timber to the left. Two miles from the landing place Mr. Carlton's residence will be noticed to the left, near some large pine timber. Mr. C. will be found to be a good guide—kind, sociable, attentive, and moderate in his charges; in fact, a gentleman whom we can unhesitatingly recommend to the favorable notice of sportsmen.

Orange County—

Altamont furnishes good bass fishing, and good general hunting. Reached via St. John's River to Sanford or Mellonville, thence stage or hired conveyance. A. M. Shepherd is an old hunter and fisherman, who will serve as guide.

Apopka. Deer, turkeys and quail. Reached via steamer up the St. John's to Mellonville, thence by wagon, nine miles.

Mellonville. Within eight miles of Mellonville are deer, bear, panther, turkey, snipe, quail, duck, plume birds of various kinds, such as white heron, pink curlew, blue heron, etc., squirrel, fox, mink, otter, sand-hill crane, and hosts of other fine game. Deer, bear, and panther are hunted with hounds, and a fine pack can be collected on short notice. Fox hunting affords good sport. Strangers will find plenty of gentlemen who have hounds, and know the stands, who are always willing to give them sport.

W. M. Humphries and Count Nersgaroe are the most noted deer stalkers, and reside near Mellonville. The finest hunting ground is the southwestern part of Orange County, on the coast. The country is invariably too rough, being covered with saw palmetto, but in the interior a carriage can be driven one hundred miles through the pine woods, with scrubs or thickets on every hand, where the deer can be "jumped" at all times.

Mellonville is reached by steamer on the St. John's River, and hunters should take a team and wagon at Mellonville, with tent and supplies to last a few days, and about forty miles distant, they will find excellent hunting on Davenport Creek. There are hotels at Mellonville, but none in the hunting grounds. Fish abound in all the streams and lakes. Shad are taken with the fly in Lake Monroe; black bass are found there in great numbers, and at the outlet are white herons, blue ducks, rail; and bass.

Longwood. Deer, turkeys, quail, black bass, bream, with other varieties of fish and game. Reached via steamer to Lake Jessup, thence stage or hired conveyance, or by wagon from Mellonville.

Salt Lake is well worth visiting, especially if the day is warm, and the sports-

man fond of 'gator shooting. Deer hunting in this neighborhood is fair, and the region would be found worthy of a visit. Yellow legs, kill deer, red breasted snipe, and other varieties, coots, pintail, and black ducks, and teal are the game birds found here. Black bass abound.

Orange Dale. Grey and fox squirrels, and other game in Hutching's Hammock.

At *Lake George*, on St. John's River, large bass and wild fowl in greatest abundance. In Bell's Stream, six miles from the Drayton Island Hotel, the best bass fishing can be found. This hotel is much favored by sportsmen; it is kept by a Mr. Crosby. St. John river steamers make this locality easy of access.

Putnam County—

San Mateo. Deer, turkeys and squirrels in abundance; in the St. John's mullet are taken in large quantities, and Lake May, six miles distant, is an excellent fishing ground for fresh water trout. San Mateo is on the river, eighteen miles below Jacksonville, and reached by steamer.

Volusia County—

Enterprize. Deer, wild turkey, quail, duck and snipe; black bass. Reached via steamer up the St. John's. A good place for sportsmen is at Aiken's, twelve miles from Enterprize, on the road to New Smyrna.

New Smyrna and the Indian River Country. Deer, bears, wild turkeys. The fishing comprises sheepshead, red bass, salt water trout, whiting, black-fish, grunts, scup, groupers, rock groupers, cavalli, snappers, drum, bezugas, pigfish, catfish, sharks, and rays. Besides these common species, are occasionally taken specimens of more southern and tropical forms, which variety adds much to the interest of a day's sport in these waters. The sheepshead run from one-half to seven pounds; average, three pounds; bass from one to thirty pounds; average five pounds; grouper from one to fifteen pounds; average, three pounds; snapper from one-half to ten pounds; average, two pounds; trout from one to twenty pounds; average, four pounds; drumfish from five to fifty pounds; average, ten pounds; whiting and pigfish average one-half pound each; black fish about one-half pound; blue-fish, one-half pound.

In *Spruce Creek*, excellent black bass, red fish, sea trout, jew fish and tarpum fishing. The bass average two and a half pounds. Go to Major Alden's house, or Mr. Loud's. One of the best guides is Morrison Lewis. His terms are $2 per day, and $1 for the use of a horse, which will be found necessary in hunting the great swamp that extends from New Smyrna to the head of Indian River. The best time for hunting is from 15th December to 1st February. In February the does are with fawn, and only the bucks are fit to kill. Wild turkeys should not be killed after February. The fishing is best after February.

The Hillsboro' for twenty miles is filled with mangrove and marshy islands, making many exceedingly tortuous channels difficult to follow. "Shipyard Reach," fifteen miles south of Smyrna, is a noted place for ducks; but the best of all grounds is a little below on the west channel, where they come to a little pool all day long to drink. Parties have been here and shot a hundred to the man in half a day's shooting. Bissett's orange mound is a favorite place; here the wild oranges glow and gleam through the dark foliage, covering a shell mound, at whose base is a drinking pool where the ducks flock by scores. October and November are the best months, and again in March, the interim being spent by the greater part of the mass of ducks wintering in Florida further south.

The route to New Smyrna is up the St. John's to Enterprise, thence via stage or hired conveyance across the country. Or via steamer up the St. John's and Deep River to Crescent City, thence by stages which make bi-weekly trips. Boats are transferred for from $1 to $20.

Titusville and the Indian River Country. Titusville is a point of arrival and departure for more interesting points on the river. For ducks one must go across the river to Dummitt's, ten miles, or to Banana creek, still further. For deer, to Merritt's Island, or to the prairies bordering Salt or South Lakes. Boatmen and guides can be hired to any point on the lagoon and interior. James Stewart, captain of the "Blonde," is perfectly trustworthy and reliable. Jim Russell is thoroughly posted upon the game and fish of Indian River, and will be found of great value to any party contemplating a winter's camp here.

Indian River, so called, is not properly a river; but rather a sound or salt water lagoon, being separated from the ocean by a narrow strip of sandy land,

overgrown with palmettoes and mangroves. It is about one hundred and fifty miles long, and ranges from several miles to forty yards in width. On the east it is fed by several inlets from the sea, through which the tide ebbs and flows freely. Several large rivers enter it from the west, the principal of which are the San Sebastian, Santa Lucia, and Locha Hatchee. Besides large game, such as bear, deer, turkeys, etc., this region literally swarms with snipe and ducks, at least during the winter months. Partridges (bob whites) are also sufficiently numerous to afford sport. The snipe shooting on the savannahs is simply superb. These savannahs (or natural meadows) afford sufficient moisture to attract the birds, without being so miry as to render the walking difficult or fatiguing, as is so often the case at points further north.

The localities for fish and game in Volusia and Brevard Counties, are these:

For fish go to New Smyrna, Indian River inlet or Jupiter. For duck, Mosquito lagoon and Hillsboro', at the places already mentioned, the marshes between Black Point and the canal, at Dummitt's, Pelican Island, near the Narrows, and St. Lucie Sound. Ten Mile Creek, ten miles back of Fort Pierce, also abounds in teal and wood duck. For deer and bear "Turnbull's hammock," near New Smyrna; Merritt's Island, and the beach ridge, three miles from the southern end; the Narrows; St. John's prairie, five miles west of Capron and beyond. For turkey, St. John's prairie and about St. Lucie Sound.

There are good camping sites at Indian River canal, Jones' Point, Addison Point, Horse Creek, Turkey Creek, south end of Merritt's Island; St. Sebastian, Barker's Bluff, Fort Capron, Fort Pierce, and at various points along St. Lucie Sound. Water may be procured almost anywhere, by digging a shallow pit in the sand.

St. John's County—

Remington Park. Black River abounds in large bass. Fine trout, (weak fish) and bass, weighing six pounds are taken up the river a short distance from where it empties into the St. John's. No hotels, but Capt. H. will secure accommodation for gentlemen in private quarters. Camping out in winter is preferable, although the river steamers make the locality sufficiently accessible from hotel accommodation.

St. Augustine. Deer, rabbits, squirrels, foxes, wild turkeys, ducks, including the mallard, teal, summer, spoonbill, widgeon, shagpole, sprigtail, black-head, blue-head, English diver, canvas-back, and raft-duck; channel bass, trout,—mullet,—whiting, black fish, sheepshead. Sportsmen hunt some few miles south of the city, on the Halifax River, as they like the idea of spending a few weeks of camp life. They generally go by way of the Matanzas River, running South about twenty-five miles; thence they are hauled over—boat and all—a strip of land nine miles in width to the Halifax River.

Suwannee County—

Live Oak. Deer and wild turkey. In the ponds and lakes east and southeast of Live Oak, many varieties of fish are caught. The Suwannee River is an excellent stream for fish and game. Live Oak is at the junction of the Atlantic and Gulf, and the Jacksonville, Pensacola and Mobile Railroads. Board in private house $15 to $35 per month; guides $1 to $1.50.

Wakulla County—

New Port. On the opposite side of the river, deer, bears, turkeys, and other game in great quantity. The route is by boat from St. Mark's.

St. Mark's. Bears, deer, wild turkeys, quail, snipe, geese, brant, ducks, and other wild fowl. Reached via the Jacksonville, Pensacola and Mobile Railroad, and by the Gulf Steamers. Sportsmen should provide camping outfit. Guides $1 to $2.

Washington County—

Phillip's Inlet. Deer, bear, and wild turkey in great abundance.

Lake Okechobee. There is but one practicable route to Lake Okechobee, that via the Kissimmee River. There are, however, two routes to that river. A good boat, provisions, and everything necessary for a month's stay, are necessary by either. One is from Indian River, at St. Lucie, across the country, to the location of old Fort Bassenger, on the Kissimmee River. The other is from Lake

Jessup, or Winder, on the St. John's, to Lake Tohopekaliga, or Cypress, the head waters of the Kissimmee.

It is said to be about forty miles over land, and one hundred and forty down the river to Bassenger.

The Kissimmee, as it enters the lake, forms a bay a mile in width and depth, filled with lilies and water-lettuce. There are two cypress trees near its mouth, but all around is marsh. The most conspicuous birds on the river are the limpkin, or crying bird, the white ibis, white heron, snake bird and vulture. Black bass are plentiful and large, perch, cat-fish and bream also abound.

The game birds found here are wild turkey, quail, kill-deer, plover, snipe, yellow legs, red breasted snipe, sand hill cranes, clapper rail, coots, herons, bittern, green wing teal and wood duck.

GEORGIA.

Area 58,000 square miles: population 1,184,109. The State has a coast line of one hundred miles from north to south, but by numerous islands and their inclosed sounds this is increased to four hundred and eighty miles. Back from the coast for twenty miles, the surface is low and swampy, stretching out, in the extreme southwest, into the Great Okifinokee Swamp. Back of this swamp land the country rises by a series of terraces covered with pine forests, to Baldwin County where the foot-hills begin. North and west of this county is the hill country described more particularly hereafter under Bartow County. The State is well watered by numerous large rivers, and these with excellent railroad connections afford good facilities for communication with all parts of the interior. Many portions of the State, especially the great forests of the central and southern sections are sparsely settled, and there are few hotels. But the stranger will find no difficulty in securing either entertainment or guides when the latter are necessary.

Bartow County, and The Hill Country—

The northern and north-western portion of Georgia, embracing the counties of Rabun, Habersham, Hall, White, Towns, Union, Lumpkin, Fannin, Gilmer, Pickens, Murray, Gordon, Bartow, Dade, Walker, Chattooga, and Floyd—a tract one hundred and forty miles long by about seventy-five wide--contains some of the roughest, wildest and most picturesque scenery in our land, and this is "The Hill Country of Georgia."

The tourist will find high mountains, crystal streams, deep, dark gorges, roaring torrents, smiling valleys—in short, the grand and the beautiful in nature in every conceivable form, and the lovers of the rod and gun can find in its recesses some of the choicest sport in the South. It is a wild country, and it will be no child's play hunting and fishing through this wilderness. Game of all kinds is abundant. Deer and bear are everywhere found, and amid its deep fastnesses the scream of the panther is not unfrequently heard.

The visitor to the hill country will also find turkeys, partridges (quail) and squirrels abundant, and the seasons in this elevated region are but little earlier than much further north. As a general thing fish are scarce; suckers, bull-pouts and several other varieties are found in most of the streams. Where the water is clear and cold the chub and bream abound, and most of the lakes and mill-ponds contain "trout," *i. e.*, the black bass of the South. These bass are also

found in the rivers whenever they are not obstructed by falls or too steep rapids. East of the Blue Ridge, the mountain or speckled trout (*salmo fontinalis*) are not found, save in one creek—"Warwoman's Creek"—in Rabun county. On the west side of this ridge, however, they abound.

The means of access to this country are—via Chattanooga, over the Western and Atlantic Railroad, and via Richmond, over the Atlanta and Richmond Air Line Railroad. One cannot go amiss, whatever direction he takes after he leaves the railroad. Horses and teams can be obtained in all the county or other towns with but little trouble. Hotels are scarce, though each county town, usually, has one or more. But if the visitor will be satisfied with the rough fare of the country, he will be welcome everywhere. All will be glad to go shooting or fishing with him, for no one is ever so busy as to have no time to spare. In all these counties are men who do little but hunt, and anywhere good guides and good hunters can be obtained.

Adairsville, Cartersville and Kingston, all on the Western and Atlantic Railroad, will be found convenient headquarters for Bartow County.

Bryan County—

Way's Station. Game exists in great variety—deer, bears, turkeys, quail, snipe, and woodcock, besides otters, coons, minks, and opossums. The area of forest has increased since the war, and game has multiplied apace. There are no hotels or houses for entertainment; the sportsman must go prepared to camp, but the planters are kind-hearted, and know a gentleman when they see one. Reached via the Atlantic and Gulf Railroad, from Savannah. Every one keeps pointers, and deer dogs are easily procured. Hunting is good throughout the country which is level and sandy, undulating on the river margins, and covered with pine forests.

Camden County—

Cumberland Island. A favorite resort for Georgia sportsmen. Reached by the "inside-passage" boats between Savannah and the Florida ports, or from Brunswick, which has rail connection with Savannah and the interior towns.

The St. Mary's River, which forms the southern border of the county, is a fine region for game. Reached by boat as before, or from Fernandina, Fla.

Chatham County—

Savannah. Quail shooting on the Ogeechee road, a few miles from town; wild fowl shooting on the inlets, and among the neighboring islands. People fish in and around Savannah all the year round, and there is a certain bank off Tybee Light, near the Light Ship, where bass are captured in quantity. From Savannah to Thunderbolt, and in all the waters in the vicinity, are fish in plenty, including bass, sheepshead, whiting and croaker.

Green Island, sixteen miles from Savannah, is an excellent place for quail and wild fowl shooting, and is reached by rail, boat from Savannah, or by the regular inside route of the Florida steamers.

White Bluff, eight miles from Savannah, affords fine fishing, and shooting for quail and other birds.

Chattooga County—

Summerville. See Bartow County. The route is via the Selma and Dalton Railroad to Skelley's.

Clarke County—

Athens. Deer, turkeys, squirrels, partridges. Reached via the Athens Branch of the Georgia Railroad. There are several large hotels.

Columbia County—

Berzelia. Foxes and quail. Fox hunting is a favorite sport throughout the county; there are many fine packs of hounds kept for the purpose. Reached via the Georgia Railroad from Savannah, Charleston or Atlanta.

Dade County—

Trenton. Wild turkeys and woodcock, quail, deer and bears. Reached via the Alabama and Chattanooga Railroad, eighteen miles from Chattanooga. The

county occupies the valley of Lookout Mountain, and is surrounded by hills and mountains in which game abounds. See Bartow County.

Decatur County—

Bainbridge. Deer, wild turkeys, quail, ducks, English snipe. Lake Douglass, Moose Pond and Flint River with other localities, are the best known grounds. Reached via the Atlantic and Gulf Railroad. Hotel $2; private board $15 to $20 per month; guides 50 cts. For the best sport camping is necessary. The country is pine barren and hammock.

Fannin County—

Morganton. See Bartow County. The route is via carriage road from Dalton.

Floyd County—

Rome. See Bartow County. The route is via the Selma, Rome and Dalton Railroad. Hotel accommodations.

Gilmer County—

Ellijay. For game, etc., see Bartow County. Reached via the Western and Atlantic Railroad to Tilton, thence wagon.

Glynn County—

Brunswick. There is a variety of excellent salt water fishing in the sounds, and among the coast islands. The pine barrens and swamps abound in many kinds of game. Bears, deer, turkeys, quail, woodcock, snipe, many kinds of wild fowl, with several varieties of fur bearing animals. Brunswick is reached by the Macon and Brunswick, and the Brunswick and Albany Railroads, or by steamer from Savannah and Florida ports.

Gordon County—

Take the Western and Atlantic Railroad from Chattanooga, Tenn., or from Atlanta, and learn from the conductor or employees of the train, where to leave the railroad for a camp in the woods. Black bass fishing, and a variety of fishing will be found. Provisions may be obtained at the neighboring farmhouses. For fuller directions, see *Forest and Stream*, Vol. iv., No. 24, July 22, 1875. The railroad officials will be found attentive to the wants of sportsmen. See Bartow County.

Habersham County—

Tallulah Falls. See Bartow County. The route is via the Atlanta and Richmond Air Line to Toccoa, thence by wagon.

Hall County—

Gainsville. Deer, turkey and quail shooting. Take the Atlanta and Richmond Air Line. There are good hotels, and the town is in summer a fashionable resort. See Bartow County.

Liberty County—

Fleming, *McIntosh*, and *Walthourville.* For game and route see Way's Station, Bryan County.

Lowndes County—

Valdosta. Deer, turkeys, quail, etc. Reached via the Atlantic and Gulf Railroad. Hotels with guides, teams, etc., easily procured. The country is level pine and hummock land.

Lumpkin County—

Dahlonega. For game, etc., see Bartow County. Reached via the Atlanta and Richmond Air Line to Gainesville, thence wagon road. Hotel accommodations.

McIntosh County—

Broughton Island, near Broughton, Altamaha Sound, and the rivers and

creeks which empty into it, furnish most excellent fishing grounds throughout the year. In the Sound are immense numbers of sea bass, spotted bass, drum, sheepshead, "young drum," whiting, croakers, weak fish, and yellow tails, besides oysters, clams, crabs, shrimp, prawn, terrapin, etc.

On the wide rivers which form the boundary line of Broughton, terrapin, soft-shelled turtles, bream, trout, rock fish, perch (three or four species), and many other kinds in their season. The uplands in the vicinity of the island offer excellent sport in the way of deer, coon and fox hunting. Ducks and other wild fowl frequent the sounds and rivers. Wild turkeys, partridges, English snipe, woodcock, turtle doves, with hares in abundance, must not be forgotten in making up a list of the shooting resources of this part of the Georgia coast.

Johnston Station. For game and route see Way's Station, Bryan County. The country is level pine land.

Sapelo Island. For game see Broughton Island, above. Randolph Spalding's sons keep a pack of hounds.

Murray County—

Spring Place. For game and character of country see Bartow County. Route via Western and Atlantic Railroad to Dalton, thence wagon drive.

Oglethorpe County—

Lexington. For game and route see Athens, Clarke County.

Pickens County—

Jasper. For game, etc., see Bartow County. Reached by wagon road from Calhoun, on the Western and Atlantic Railroad.

Putnam County—

Eatonton. Deer and turkeys in the neighborhood. Reached via Central Georgia Railroad to Gordon, thence via Milledgeville and Eatonton Branch. The town is on a high ridge.

Rabun County—

Deer, turkey, bear and wild cat. Take the Atlanta and Richmond Air Line, and learn from the conductor what station to strike out from. Guides can easily be secured, with board at the farmhouses. The country is mountainous, and covered with forests. See Bartow County.

Richmond County—

In the vicinity of Augusta, is good bird and rabbit shooting. At the head of the canal, which takes water from the Savannah River for the cotton factories in town, are excellent perch and black bass fishing on the rapids; and shad are also taken here with fly. The rapids are seven miles above town. This is a favorite picnic ground for the town people. Deer are found along the bottoms in the vicinity.

Thomas County—

McDonald. Bear, panther, deer, turkeys and quail. Reached via the Atlantic and Gulf Railroad. Comfortable hotel.

Thomasville. Deer, turkeys and quail. Reached via the Atlantic and Gulf Railroad. Hotel, with teams, etc.

Towns County—

Hiawassee. For game, etc., see Bartow County.

Union County—

Blairsville. See Bartow County. Reached by wagon from Gainesville. There are two hotels.

Walker County—

La Fayette. For game, etc., see Bartow County. Reached by wagon road from Dalton.

Ware County—

Tebeauville. Bears, deer and wild turkeys are found in the neighborhood. The favorite ground for hunting and fishing, is the extensive Okefinokee Swamp,

eight miles distant. Reached via the Atlantic and Gulf Railroad, ninety-seven miles from Savannah. The Tebeauville Hotel, J. W. Reinhart, $2, $8 per week. Guide $1.50. Parties usually camp. The country is low, flat pine land and swamp.

Washington County—

Oconee, and the Oconee Swamp. This swamp, ten miles in length, extending along the Oconee River, is filled with great numbers of bears, deer, wild turkeys and other game, with all varieties of wild fowl. Take the Central Georgia Railroad.

Wilkinson County—

Toomsborough. Excellent shooting in the Oconee Swamp. For game and route see Oconee, above.

White County—

Cleveland. See Bartow County. Reached via the Atlanta and Richmond Air Line to Gainesville thence via wagon.

IDAHO.

The territory of Idaho embraces an area of 86,294 square miles, and had a population in 1870, of 20,583, of whom 10,618 were whites and the rest Indians and Chinese. Idaho is mountainous throughout nearly its whole extent; many of its mountain ranges are lofty and snow-capped. The only plain or prairie of note is that extending along the Snake River south-east from the Payette and Sandtooth Mountains. Most of the rivers, of which there are a large number, have fertile valleys, which constitute the most valuable agricultural lands in the territory. There are several lakes of considerable extent, all of which, with the rivers, are supplied with the usual varieties of fresh water fish. The mountains and forests abound in many varieties of large and savage game, including bears, wolves, panthers, etc., while buffalo, moose, elk, several species of deer, with smaller game, and many varieties of fur bearing animals are found in great plenty. The birds include ninety-five species, and are generally abundant. The means of communication are confined to wagon roads and trails. There are no railroads in the territory though several have been projected. The nearest approach by rail is via the Ogden and Franklin Branch of the Union Pacific. The inaccessibility of the country has greatly impeded its settlement and hence the sportsman will find here vast tracts of undisturbed game ground, where weeks and months may be spent in successful sport.

Ada County—

Boise City, is a central point for expeditions into the game regions of Ada County and those adjoining. The route is similar to that of Idaho City. (See Boise County.) The game in the mountains includes elk, antelope, mountain sheep, deer, bears and small game. The streams furnish mountain and salmon trout, white fish, and other varieties.

Attava County—

The Three Buttes are good hunting grounds for the mountain game common in this region and mentioned below. Reached from Soda Springs or Boise City. The northern part of the county is composed of mountain ridges, among which game will be found in large quantities.

Boise County—

Quartzburgh. Deer, bear, grouse, mountain trout, white, and red fish, salmon trout. Route as above.

Idaho City. Elk, deer, mountain sheep, bear; mountain and salmon trout, red and white fish. Reached via Central Pacific Railroad to Kelton, thence stage three hundred miles. Board $3; guides $4; teams $8.

Payette Lake contains red fish. Parties are fitted out at Idaho City for fishing and hunting expeditions to the lake.

Idaho County—

This county, extending east and west from Oregon to Montana, is a grand field for hunting and fishing. The county is mountainous, and for the most part unsettled. The game found here comprises bears, wolves, panthers, wild-cats, foxes of several species, moose, buffalo, on the Payette Valley prairie, elk, black-tailed and mule deer, antelopes, Rocky Mountain sheep, ducks, geese and many other kinds of water fowl, with other game birds in great variety and abundance, and the fresh water fish common to the territory. There will also be found excellent trapping in all the streams. Elk City at the base of the Bitter Root Mountains is a good place for headquarters.

Lahtoah County—

Moose are found in the Cœur d'Alene Mountains. Sage hens are abundant throughout the county.

Oneida County—

Fort Bonneville is a good starting point for elk, mountain sheep, antelope, bear and deer shooting. Quail, and grouse are abundant. Mountain and salmon trout, and white fish furnish good fishing.

Soda Springs, on Bear River, is in the centre of excellent hunting and fishing. The game is abundant in the mountains south and east. Bear River contains grayling, and the mountain streams are filled with mountain trout and other varieties of game fish.

Shoshone County—

The mountains which form the eastern boundary of this county are full of large game. Go to Pierce City where guides will be found.

ILLINOIS.

The area of the State is 55,410 square miles, the population is 2,537,891. The surface of the country may be described as a gently inclined plane, sloping from Lake Michigan, on the north, toward the Mississippi and Ohio Rivers. An elevated plateau extends from Wisconsin into the northwestern part of the State, where it is manifested in bluffs and hills. Another range of hills in the extreme southern section crosses the State from Grand Tower, to Shawneetown. With the exception of these elevations, the State is level, consisting for the most part, of prairie lands, dotted here and there with islands of oak and other forest trees. The railroad system of Illinois is remarkable for its per-

fection. The total length of her railroads exceeds that of any other State, and there is scarcely a county which is not traversed by one or more of these lines. As a game region Illinois will compare favorably with the neighboring States, in the abundance of wild fowl found on all the rivers and lakes, pinnated grouse on the prairies, and fish of various kinds in all the streams. With the exception of a little deer shooting, there is no large game.

Adams County—

Lima Lake is a noted place for wild fowl shooting. See La Grange, Lewis County, Mo. The lake, which is surrounded by marsh, contains several islands, and is connected by a navigable slough with the Mississippi River. These grounds may be reached by river steamers; by boat or hired conveyance from Quincy; via Chicago and Burlington and Quincy Railroad to Mendon, thence hired conveyance or stage to Lima; or via La Grange, Missouri.

Quincy. See Lima Lake.

Bureau County—

Sheffield. Excellent duck shooting; mallards, and other varieties. The little steamer Sheffield takes numerous parties from the Sheffield House to the favorite hunting stations on Lake Wolf, Hyde Lake, and Lake George, and the Grand Calumet, while Chittenden's, Bee's, and other points loved by the sportsman, are greatly resorted to. One hundred and thirty-six miles from Chicago on the Chicago, Rock Island and Pacific Railroad. The Sheffield House is the resort of sportsmen.

Walnut. Pinnated grouse, ducks, brant, geese. Winnebago Swamp is a favorite resort for water fowl. Reached via the Chicago, Burlington and Quincy Railroad. Stop at Deer Grove Station for duck shooting.

Champaign County—

Urbana. Pinnated grouse; pike and pickerel. Reached via the Indianapolis, Bloomington and Western Railroad. Board $2; teams $3.

Christian County—

Assumption. Geese, ducks, plover and snipe, on the wet lowland prairie. Pinnated grouse and quail abundant. Reached via the Illinois Central Railroad.

Cook County—

Chicago. At Calumet Lake, distant ten miles, and at other localities within forty miles of the city, is good duck shooting. Mallards, wood ducks, and blue and green-winged teal are the most common varieties. Wilson snipe afford average sport. By rail to Peoria and thence down the river, the shooting grounds of Mason County (which see), may be reached. See also South Chicago and Kankakee.

Lake Zurich. See Palatine.

Palatine. Pinnated and ruffed grouse, quail, partridges, many varieties of ducks, snipe, plover, wild pigeons. Lakes Zurich, Diamond, Grass, Honey, and Bangs, are in the vicinity, and afford excellent fishing. Of these, Lake Zurich may be especially mentioned. The village of the same name is on its shores, and has two good hotels for summer guests. The lake is belted all around with groves of timber, among the openings of which grass-plats slope down to the pebbled beach. Its waters abound with fish of various kinds, the principal of which are pickerel and black bass. Reached via the Chicago and Northwestern Railroad. Excellent hotels.

South Chicago, twelve miles from Chicago, on the shore of the lake, is a favorite point for Chicago excursionists. In the vicinity, especially in the bays and sloughs of the Calumet region, are great flocks of ducks and other wild fowl. Reached via the Lake Shore and Michigan Southern, the Pittsburgh, Fort Wayne and Chicago, and Baltimore and Ohio Railroads.

De Witt County—

Farmer City. Good pinnated grouse shooting. Reached via Gilman, Clinton and Springfield Railroad.

Ford County—

Gibson City. Pinnated grouse abundant. Reached via the Chicago and Paducah, and other railroads.

Franklin County—

Benton. Good wild turkey shooting in the neighborhood. Reached by wagon road from McLeansborough on the St. Louis and South-eastern Railroad, or from Duquoin on the Illinois Central Railroad.

Fulton County—

The Illinois River. See Mason County.

Lewiston is within a few miles of the celebrated sporting grounds of the Illinois River. Reached via the Chicago and Alton Railroad.

Hancock County—

Nauvoo. Deer and wild turkeys, with an abundance of pinnated grouse, woodcock and quail. Reached by river steamer, or wagon road from Keokuk.

Iroquois County—

St. Mary's. Ducks, geese, crane, plover, snipe, quail, woodcock, ruffed and pinnated grouse. Reached via the Cincinnati, Lafayette and Chicago Railroad. Board $2.

Jefferson County—

Calumet. Duck and snipe shooting. Reached via the Illinois Central, or the Michigan Central Railroad.

Jersey County—

Grafton is a few miles above Alton at the junction of the Illinois River with the Mississippi.

In the vicinity of the mouth of the Illinois River there is good deer hunting. In the marshes and lakes are snipe in their season, and ducks most of the year. In the corn fields and stubble, an abundance of quail. On the brushy hillsides there are ruffed grouse, locally known as "pheasants." Great numbers of geese and brants frequent this vicinity, and many are killed as they pass from their feeding grounds in the fields to the sandbars and lakes. There are a number of places in the Mississippi, near the mouth of the Illinois, where the current is too rapid and the shallow waters too turbulent to freeze at any time. Both geese and ducks (mallards) frequent these open places. Take rail to Alton, thence by wagon road.

Kane County—

Batavia. The Fox River, from the Wisconsin line to its junction with the Illinois River at Ottawa, a distance of about one hundred miles, abounds with fish common to the tributaries of the Mississippi, and probably second to none in numbers, variety and size. At the head of the river are a number of lakes abounding in mascalonge, black, silver, rock and river bass, yellow perch, gar, pickerel, wall-eyed pike, red horse, bull heads, silver eels, and four varieties of dace. Batavia is on the Chicago and Northwestern Railway.

Geneva is built on terraces on both sides of Fox river, which is well stocked with black bass, pickerel, pike, sun, and other fish. Its best hotel is The Union House, which can accommodate one hundred guests at $2 per day.

The surrounding country is rolling, and is about equally divided between prairie and timber. The county affords fine shooting in season. Pinnated grouse, quail, woodcock, partridge, and other game abound. *Nelson's Lake*, *Johnson's Mound*, and *Harrington's Island* are popular resorts, one to seven miles from the village. Take the Chicago and Northwestern Railroad.

Lake County—

Deerfield. Black squirrel shooting is good in the woods about Deerfield. Take the Chicago, Milwaukee and St. Paul Railroad, twenty miles from Chicago.

Fox Lake. Fine hunting in the neighborhood. The duck shooting is excellent.

Lake Zurich. See Palatine, Cook County.

Waukegan. Game of most kinds abundant; fox and black squirrels very plenty. Reached via the Chicago and Northwestern Railroad. Good hotels.

Kankakee County—

Kankakee. The Kankakee River flows through a country which is one vast marsh for miles on either side. At times its banks are darkened by the heavy forests of Indiana, which fringe the stream for a considerable distance. The river is winding and rapid, being deep in many places and in others so shallow that boats cannot pass and have to be carried. In other places the wild rice grows all across the shallows, this generally occurring when the surrounding land lies low, forming the home of myriads of wild fowl of all sorts. There are also plenty of fish in this stream, chiefly pickerel and black and speckled bass. Kankakee is a station on the Illinois Central Railroad, and on the Cincinnati, Lafayette and Chicago road. Sportsmen should prepare for camping out.

St. Anne. Geese, brant, ducks, cranes, snipe, quail, pinnated grouse; pike, pickerel, bass and other varieties of fish. Reached via the Chicago, Danville and Vincennes, and Cincinnati, Lafayette and Chicago Railroads. Hotels $1 to $1.50 per day, $4 to $5 per week; guides $1 to $1.50; boats $1; teams $2.50 to $3.

La Salle County—

Marseilles. Among the Islands, at the Kickapoo Rapids of the Illinois River, are some excellent snipe shooting grounds. The route is via the Chicago, Rock Island and Pacific Railroad.

Ottawa. The marshes on the Illinois River, near this town, are fine ducking grounds. Reached via the Chicago, Burlington and Quincy, or the Chicago, Rock Island and Pacific Railroad.

Lee County—

Compton. Inlet Swamp affords excellent shooting for Canada geese, brant, mallards, pin tails, ruffle heads, spoonbills, teal, and jack snipe, and on the borders of the swamp are ruffed grouse and quail. Take the Chicago, Burlington and Quincy Railroad to Compton, thence hired conveyance to the swamp, five miles north. The mouth of Wilson Creek is the best spot for game.

Dixon. A small steamer runs between Dixon and *Grand Detour*, twelve miles, and passes *en route* many islands and picturesque points of interest. The river provides ample fishing grounds, and the fisherman will be abundantly repaid for angling in its waters. Game abounds, the golden plover, upland plover, the jack snipe and woodcock being especially plentiful. Reached via the Chicago and Northwestern Railroad. There are several fine hotels.

Nachusa is on the Chicago and Northwestern Railroad, ninety-three miles from Chicago.

White Rock, a popular picnic and fishing resort, is four miles north, and is much frequented by parties from all portions of the State. The rock is a noted landmark, rising as it does sixty feet above the surface of the water of Rock River, and above the surrounding prairie.

Livingston County—

Chatsworth. Deer, wild turkeys and grouse. Reached via the Toledo, Peoria and Warsaw Railroad.

Logan County—

Elkhart City. Quail, pinnated grouse, ducks and geese. Wild turkeys at Lake Fort, seven miles distant. Reached via the Chicago and Alton Railroad.

Lincoln. The game on Salt Creek is similar to that of the Sangamon River. See Petersburg, Menard County. Reached via the Chicago and Alton, and other railroads.

McDonough County—

Colchester. Pinnated grouse. On the Chicago, Burlington and Quincy Railroad.

McHenry County—

Cary Station is one mile from Fox River, in which is excellent fishing. See Batavia, Kane County. Reached via the Chicago and Northwestern Railroad, thirty-eight miles from Chicago. There is a fine hotel, where sportsmen will receive every attention.

Crystal Lake. The lake affords good black and rock bass, pickerel and perch fishing. Reached via the Chicago and Northwestern Railroad.

Harvard. The Twin Lakes are twenty miles distant; a line of stages runs to Geneva, which see. Reached via the Chicago and Northwestern Railroad.

McHenry is sixty-six miles from Chicago, on the banks of Fox River. It has three hotels. Five miles distant, a chain of small lakes extends eastward some thirty miles. These lakes are full of fish, and along their shores game is found in abundance. Reached via the Chicago and Northwestern Railroad.

Richmond is on the banks of the Nepersink River. The Twin Lakes are three miles from the station, and furnish excellent fishing. Game abounds in the vicinity. Reached via the Chicago and Northwestern Railroad, seventy-five miles from Chicago. Hotel accommodations.

Ridgefield. Excellent shooting and angling in the vicinity. Reached via the Chicago and Northwestern Railroad, forty-six miles from Chicago.

McLean County—

Belle Flower. Excellent pinnated grouse shooting. Reached via the Gilman, Clinton and Springfield Railroad.

Bloomington. Pinnated grouse on the prairies. Reached via the Chicago and Alton, or Illinois Central, and other roads. Board $3; teams $3 to $5.

Leroy. Pinnated grouse and quail. Reached via the Indianapolis, Bloomington and Western Railroad.

Macon County—

Decatur. Pinnated grouse and ducks. Reached via Illinois Central and other railroads. Hotels $3.

Madison County—

Alton. Duck and snipe shooting. Reached via the Chicago and Alton, or Indianapolis and St. Louis Railroad.

Mason County—

Havana, forty miles below Peoria, on the Illinois River, (which see, below) is reached by steamer, or via the Peoria, Pekin and Jacksonville, the Indianapolis Bloomington and Western, or the Springfield and Northwestern Railroads.

The Illinois River. The most noted sporting grounds in Central Illinois, if not in the whole State, lie upon the Illinois River about twenty-five miles below Peoria. The game here is of great variety and abundance, consisting of ducks; the mallard, wood or summer, blue and green winged teal, widgeon, canvas back, and nearly all the other inland varieties, with several of the salt water species; geese, the brant and common wild goose; white pelicans, sand hill cranes, herons, water turkeys, coots, plover, snipe, common hawks, bitterns, curlew, loons, dippers, quail, pinnated grouse, woodcock, large fox squirrels; catfish, buffalo fish, pike, bass and most of the ordinary varieties of fresh water fish. Of fur bearing animals, there are raccoons, minks and muskrats. The hunting grounds lie upon either side of the river. The part west is in Fulton County, that east in Mason County. Havana, a small village near the south end of them, is a good initial point, either by railroad or river. They are about eight miles long, and one and a half miles on each side of the stream. They are "bottom lands," and generally heavily timbered, but in some places open, except brush, flags, weeds, etc. They are lower, back from the river, than on its banks, which are open, hard, dry, and fine for camping, with plenty of wood. Blind wagon roads intersect them generally, so they are easily entered on almost every side. The river is generally about three hundred yards wide with a slow current, and sloping banks. On each side, and back at convenient distance for hunting, lie about twenty lakes, sloughs and ponds, varying from three miles and a half, down to the ordinary pond. These, about ten on each side, stretch along from north to south, throughout the hunting grounds. The most prominent are Thomson's, Johnson's, Slim and Duck Island, in Fulton County; Flag, Spring, Mud and Clear in Mason County. Camps are generally pitched so as to command several of these lakes. Persons living in the vicinity will always conduct strangers to the best camping grounds, or haul their camp equipage to and from the same. Steamboats often land parties right on the ground, hence Peoria or Pekin, from the north, are good initial points, where perfect outfit for camp may be purchased. A small skiff or boat is almost indispensable, and there are few if any to hire. India rubber boots with high leggins, are a necessary article of outfit. Most of the game killed may be got by wading from the shore. The lakes are generally shallow, and some may be waded; some are open, but most are broadly belted with wild rice, flags, grass, etc. From about the 10th to the 20th of October is the best time to camp here. Shooting is generally along the borders, and a retriever will add much to the sport.

Mason City. Good plover and snipe shooting. On the Chicago, Milwaukee and St. Paul Railroad.

Middle Grove. Pigeons, fox-squirrels, grouse, quail, ducks and geese. Reached from Peoria.

Menard County—

Petersburgh. On the bottom lands of the Sangamon River are geese, ducks, mallards, blue bills, pintails, green-winged teal, blue-winged teal, wood ducks, snipe, quail and grouse. Reached via the Chicago and Alton Railroad.

Monroe County—

Murdock Lake, twenty-six miles south of St. Louis, affords excellent black, white, and striped bass fishing. The St. Louis and Murdock Lake Club have a club house here. Take hired conveyance from St. Louis, or go via boat to Harrisonville, thence drive to the lake.

Morgan County—

Jacksonville. Game is abundant in the vicinity. This is the headquarters of the Audubon Sportsman's Club. Easily accessible by rail.

Ogle County—

Flag, on the Chicago and Northwestern Railroad, is three-fourths of a mile from Kite River, where fair fishing, and excellent quail and pinnated grouse shooting will be found.

Grand Detour. See Dixon, Lee County.

Rochelle. Pinnated grouse shooting. Reached via the Chicago and Iowa, and the Chicago and Northwestern Railroads.

Peoria County—

Peoria. The best grounds for sportsmen are on the Illinois River, twenty-five miles below the city. See Mason County.

Perry County—

Du Quoin on the Illinois Central, and the St. Louis, Alton and Terre Haute Railroads, is a most excellent centre for small game.

Piatt County—

Monticello. As a game region, Piatt County will compare favorably with any in the State. Monticello, a good initial point, is reached via the Chicago and Paducah, or the Indianapolis, Bloomington and Western Railroad.

Pike County—

Rockport. Geese, brant, ducks, pinnated and ruffed grouse, woodcock and quail. Reached via the Quincy, Alton and St. Louis Railroad.

St. Clair County—

Lebanon. Quail, pinnated grouse, mallards, teal and snipe. Reached via the Ohio and Mississippi Railroad.

Schuyler County—

Bluff City. Dickerson's Lake abounds in deer, ducks and brant. It is one of the best localities in the State for the above game. Smith's Lake, about three miles from Bluffs, Scott County, affords excellent duck shooting. Quail are abundant. The Bluff House, kept by Col. Waterhouse, a thorough sportsman, affords excellent quarters for the sportsman.

Scott County—

Bluffs. See Bluff City, Schuyler County. Reached via the Toledo, Wabash and Western Railroad.

Tazewell County—

Pekin. Good woodcock shooting in the vicinity of the Illinois Railroad. The shooting grounds of the Illinois River are easily accessible. See Mason County. Reached by rail from Chicago, Indianapolis, and other points.

Vermillion County—

Danville. Pinnated grouse on the prairie; bass fishing in the rivers. Reached via the Chicago, Danville, and Vincennes, and other railroads.

Whitesides County—

Deer Grove. Excellent wild fowl shooting at the Winnebago Swamp, with grouse and plover on the adjacent sand ridges and fields. Take the Chicago, Burlington and Quincy Railroad.

The Meredosia River is famous for its wild fowl shooting. See Camanche Clinton County, Iowa.

Will County—

Joliet. Pinnated grouse and snipe shooting. Reached via the Chicago and Alton, or the Chicago, Rock Island and Pacific Railroad.

Lockport. Good woodcock shooting in the vicinity. Reached via the Chicago and Alton Railroad.

Peotone. Geese, ducks and snipe. Reached via the Illinois Central Railroad, forty-one miles from Chicago.

Winnebago County—

Rockford. In the Rock River, which flows through the city, and in its tributary, the Kishwaukee, are found shad, salmon, trout, black bass, pike, pickerel and a few perch. Grouse and quail shooting in the vicinity. Reached via the Chicago and Northwestern, or the Chicago and Iowa Railroad.

INDIANA.

Area, 33,809 square miles; population, 1,680,637. There are in Indiana no mountains, and no hills except what are known as river hills. These are formed by the erosion of the rivers, forming deep valleys gradually sloping from the former broad limits of the rivers, to their present channels. These valleys give the bluffs the appearance of hills where in reality they do not exist. Of the whole surface of the State two-thirds are very level, the other third being broken and rolling. The State is well watered by rivers and many small lakes, or what in the East would be called ponds, the largest of which is Beaver Lake, in Newton County. There is in the State no large game to offer attractions to the sportsman. Smaller game is, however, abundant, hares, rabbits, squirrels, and pinnated grouse in unlimited quantity, with an abundance of all kinds of wild fowl. Railroad communications throughout the State are very perfect; here as in Illinois, every county is easily accessible, and on nearly every line of these roads the sportsman will find abundant sport.

Allen County—

Fort Wayne. There will be found excellent quail, ruffed grouse and rabbit shooting on the line of the Toledo, Wabash and Western Railroad, between Fort Wayne and La Fayette. Deer and wild turkeys are found thirty miles out, on the Muncie Railroad. Good bass, pike and pickerel fishing near the city.

Bartholomew County—

Columbus. Deer, wild turkeys, pinnated and ruffed grouse, quail, woodcock, snipe and wild fowl. Reached via the Jefferson, Madison and Indianapolis Railroad. Good hotels at moderate rates.

Blackford County—

Montpelier. From Montpelier as a centre the sportsman will find seventeen thousand acres of splendid shooting ground, perfectly level. The game includes deer, wild turkey, ruffed grouse, woodcock and wild fowl of all varieties. Take the Fort Wayne, Muncie and Cincinnati Railroad. Private board can be obtained at the farmhouses.

Hartford City. Wild turkeys and quail in the immediate vicinity of the town. Reached via the Fort Wayne, Muncie and Cincinnati Railroad.

Crawford County—

Wyandotte. In the Greenbrier and Blue Rivers is good fishing for black bass, rock bass, sunfish, pike, and there are many catfish. Wyandotte is about sixty-five miles below Louisville. The daily packets of the Louisville and Evansville Mail Line, and the tri-weekly Louisville and Leavenworth packet stop at Leavenworth, the nearest point by water to the Cave. The fare is $1.50. Probably the most convenient of these packets is the Sandy No. 2, a very elegant little boat, with gentlemanly and accommodating officers, which ends its voyage at Leavenworth, thus enabling passengers to remain on board all night. Leaving Louisville at five o'clock, all the boats reach their destination before midnight. Board at the Wyandotte Hotel $7 per week.

Delaware County—

Muncie. Quail shooting along the White River. Reached via Fort Wayne, Muncie and Cincinnati Railroad. Hotels $2. Country level and heavily wooded.

Fountain County—

Covington. Wild turkey, quail and pinnated grouse. Reached via the Chicago, Danville and Vincennes Railroad. Hotels $2. The country hilly.

Franklin County—

Mount Carmel. Fine bass fishing in the Wabash River. See Princeton, Gibson County.

Gibson County—

Princeton. Long Pond, on the Wabash Bottom, a lake about three miles long, is full of black bass, and there is also excellent bass fishing on the rapids of the Wabash some ten miles from Princeton, where two dozen fish in an hour's time is considered nothing remarkable. The river is a clear, tumbling, rapid stream, and the ride by rail from Princeton to Mt. Carmel, and thence by omnibus to the fishing grounds, where there is a capital hotel, is a favorite excursion with both ladies and gentlemen, not only from the vicinity, but from Louisville, Cincinnati, Indianapolis and other towns. Princeton is reached via the Evansville and Crawfordsville, or the Louisville, New Albany and St. Louis Railroad.

Patoka. The flats west of the town are excellent shooting grounds for all kinds of wild fowl. On the hills are wild turkeys and quail. Reached via the Evansville and Crawfordsville Railroad.

Henry County—

Luray. Pinnated grouse and quail. Reached from New Castle or Muncie.

Jasper County—

Remington, on the Pittsburgh, Cincinnati and St. Louis Railroad, is a good centre from which to start out for a camp on the prairie. Pinnated grouse, sand-hill cranes and ducks, with other varieties of wild fowl are found. The best shooting is on the north side of the railroad. Teams can be hired from the farmers.

Jefferson County—

Madison. The Indian Kentuck, seven miles above Madison, is a fine fishing stream. Take the Jeffersonville, Madison and Indianapolis Railroad to Madison.

Knox County—

Vincennes. One of the localities especially noted for its snipe shooting, is the broad extent of marshes and prairies that lie back of the Wabash River, some ten or twelve miles from Vincennes. Pinnated grouse are found here in abundance. There is good hotel accommodation, and one can drive across the prairie in a

wagon to the hunting ground, though obliged to make many detours to avoid swamps and sloughs.

Kosciusko County—

Syracuse. Great numbers of geese and ducks congregate at Cedar and Nine-Mile Lakes. These waters abound in bass, pickerel and pike. Reached via the Baltimore and Ohio Railroad. Provide camping equipments. Guides and boats $2 to $2.50. King and Sloane are good guides.

Lake County—

Crown Point. Pinnated grouse, quail and wild fowl shooting. Reached via Pittsburgh, Cincinnati and St. Louis Railroad.

Lowell. Pinnated grouse, quail and wild fowl shooting. The route is via the Jefferson, Madison and Indianapolis Railroad.

Sheffield. An excellent headquarters for shooting on the Calumet grounds. Reached via the Pittsburgh, Fort Wayne and Chicago Railroad. There is a good hotel, with boats, etc.

Toleston. Excellent wild fowl shooting, with snipe, pinnated grouse and woodcock. Reached via the Michigan Central, and the Pittsburgh, Fort Wayne and Chicago Railroad. The Toleston Club of Chicago, has a club house here. Good boats, etc.

La Porte County—

The Kankakee Bridge is crossed by the Louisville, New Albany and Chicago Railroad; there are four club houses at this place, Crawfordsville, West, Williamson, and Hayden, and in the shooting season there will be from twenty to thirty hunters stopping at these houses, who make it pretty lively for the birds. As a general thing each member has his own boat, decoys, etc. This point is about ten miles from English Lake (see Stark County) by river, and half that distance by across-country.

Davis Station, on the Pittsburgh, Fort Wayne and Chicago Railroad, fifty miles from Chicago, affords excellent shooting. Ducks, geese, grouse, quail, snipe and woodcock. Gratton Wells will act as guide. Boats, etc. Provide camping outfit.

Hanna Station. Excellent shooting. The Pittsburgh, Fort Wayne and Chicago Railroad. No hotels.

Marshall County—

Plymouth. The pinnated grouse shooting here affords fine sport. Reached via the Pittsburgh, Fort Wayne and Chicago Railroad.

Newton County—

Beaver Lake is a great resort for mallards, pintails, and green-winged teal, also geese, snipe, prairie fowl, and rabbits.

Noble County—

The Counties of Noble, Steuben, and Whitley contain numerous small lakes, varying from fifty to three hundred acres, which abound in fish and wild ducks. Of fish, the principal varieties are the black bass, rock bass, pike and pickerel. A favorite mode of taking these fish, in vogue among the Hoosiers, is by spearing at night, and the season commences as soon as the lakes are clear of ice, and continues until the "splatter dock" shoots up its long stem and broad leaf from the bottom, in which the fish take refuge from their nocturnal enemy, the spearer. Noble County is intersected by the Grand Rapids and Indiana Railroad, and officers of the trains will furnish information as to the best game localities.

Rome City. Good duck shooting, and a variety of fishing. The lake is well-stocked with pike, pickerel, croppies, ring perch, blue-gills, etc. Reached via the Grand Rapids and Indiana Railroad, thirty-five miles north of Fort Wayne. The Lake Side Hotel furnishes comfortable accommodations for summer visitors. Boats can be obtained at the hotel. Several islands in the lake afford excellent camping grounds.

Porter County—

Valparaiso. Pinnated grouse, woodcock, quail, snipe, geese, brant, ducks and cranes. Bass fishing is excellent in the county. There are many small lakes containing fish of large size. Forty-one miles from Chicago, reached via the Chicago and Lock Haven, or the Pittsburgh, Fort Wayne and Chicago Railroad.

St. Joseph County—

South Bend. Pinnated grouse. Reached by rail.

Stark County—

The Kankakee River which flows through the northwestern part of the State, is a great resort for sportsmen from Chicago, Cincinnati, Pittsburgh, and other cities. The game includes ducks of every variety, geese, brant, sand hill cranes, pinnated and ruffed grouse, quail, snipe, woodcock and reed birds. Of fish there are bass, pike, pickerel, jack salmon, and muscalonge. One of the best centres for good sport, is *English Lake*, a small station on the Pittsburgh and Chicago Railroad. There are two good hotels at this place for the accommodation of hunters and their families who come here from the prominent cities on the line of this road. The hotels furnish boats, decoys, and a pusher, for which you pay $3 a day, board $2 a day. Their boats are made double bowed, flat bottom, very wide,and can go anywhere. from two inches to a fathom of water. At English Lake, Dr. George Yeakel will be pleased to give all needed information.

San Pierre, on the Louisville, New Albany and Chicago Railroad, is three and a half miles from the Kankakee River. Hotel $1; boat, team and driver $5.

Steuben County—

Angola and other points in the county, reached via the Fort Wayne, Jackson and Saginaw Railroad, afford good shooting and fishing. See Noble County.

Tippecanoe County—

La Fayette. Quail, ruffed grouse and rabbit shooting on the line of the Toledo, Wabash and Western Railroad.

Vigo County—

Terre Haute. The Wabash River affords fine bass fishing.

Wayne County—

Centreville. The southern part of Wayne County is a good locality for small game, such as squirrels, rabbits, and quail. Here are several packs of dogs, and in winter great sport is enjoyed in "circling" foxes, and in hunting coons at night. The trespass laws are rigidly enforced in this county. Centreville is the nearest railroad station on the Pittsburgh, Cincinnati and St. Louis Railroad. Very good hotels.

Wells County—

Bluffton. Good wild turkey and quail shooting. Reached via the Fort Wayne, Muncie and Cincinnati Railroad. Hotels, $1.50; teams $2. Country flat, heavy timber land.

Keystone. Deer and wild turkey shooting within a few miles of town. Reached via the Fort Wayne, Muncie and Cincinnati Railroad.

White County—

Reynolds. Ducks, geese, pinnated grouse, woodcock and snipe. Reached via the Louisville, New Albany and Chicago Railroad. Hotel $4 to $5 per week; teams $3.50 per day.

Whitley County—

Columbia City, and other stations on the line of the Pittsburgh, Fort Wayne and Chicago Railroad, are in the vicinity of good hunting and fishing. (See Noble County.) The conductor and employees of the railroad will always give information of the game localities.

IOWA.

Area, 50,914 square miles, population, 1,191,792. The State has no mountains, the surface being generally rolling prairie. In the north-western section is an elevated plateau called the

Coteau des Prairies, which extends into the State from Minnesota, and in the north-eastern portion of the State is a small extent of rocky and rugged country. With these exceptions the country is rolling prairie throughout the entire State. This prairie land is intersected by numerous rivers with deep furrows, and by numerous sinks, or depressions of the surface, which are especially abundant in the vicinity of Turkey River, in the northern part of the State. Near the river the country is generally well wooded, but the prairie lands are otherwise devoid of timber, presenting vast plains covered only by prairie-grass. These prairies abound in great numbers of pinnated grouse, making Iowa one of the best, if not the best ground for "chicken" shooting in the country. The water courses are the resort of all kinds of water fowl, which in their season afford excellent shooting. The facilities for travel are of the best; railroads, steamers, and good carriage roads, render every portion of the State easy of access, and on the prairies teams may be driven anywhere to the hunting grounds.

Adair County—

Adair. Good pinnated grouse shooting will be found here and at any of the stations west on the Chicago, Rock Island and Pacific Railroad.

Fontanelle. See Casey, Guthrie County.

Benton County—

Belle Plain. In the surrounding forests, deer and wild turkeys; on the prairie, pinnated grouse, quail, woodcock, snipe and other varieties; in the streams, sloughs, and bayous, ducks, geese, and brant. The Iowa River and Salt Creek furnish a variety of fishing. Reached via the Chicago and Northwestern Railroad. Several hotels offer good accommodations at prices ranging from $1 to $2.

Blairstown. Small game is abundant in the vicinity. Large pike and bass are caught in Cedar River and Prairie Creek. Reached as above.

Norway. Excellent pinnated grouse, with some deer. Route as above. Board $1.

Boone County—

Boone. Excellent pinnated grouse, duck, and goose shooting. Reached as above. Hotels $2.50, private board $5 per week.

Moingona. Pinnated grouse. Reached as above. Hotels $1, $5 per week; teams $3. Hilly country.

Buena Vista County—

Storm Lake. Quail abundant. For other game, and route, see Alden, Hardin County. Hotel and private board at reasonable rates.

Butler County—

Greene. From this point north to Austin, Minn., along the line of the Burlington, Cedar Rapids and Northern Railway, the sportsman will find pinnated grouse in immense quantities, with quail, pheasants, Canada geese, brant, sandhill cranes, ducks, all varieties except canvas backs, and a few wild turkeys.

Calhoun County—

Manson. For game and route see Alden, Hardin County.

Pomeroy. Ducks, geese, turkeys, grouse, snipe, plover, and other game birds in abundance. Route as above.

Carroll County—

Glidden is in the midst of one of the best shooting regions of Iowa. Two rivers run within five miles, along the banks of which are large tracts of timber, that are full of deer, wild turkeys, and other forest game, while the contiguous

prairies abound with pinnated grouse, snipe, woodcock, quail, and small game, and the rivers, creeks, and bayous are full of ducks, geese and brant. The Glidden House, by N. D. Thurman, and the Dedrick, by J. C. Dedrick—both furnish excellent quarters, and abundant accommodations for the sportsmen who frequent the village. Board $2; teams $3. Good board at farmhouses. Reached via the Chicago and Northwestern Railroad.

Cass County—

Anita and Atlantic. For route and game see Adair, Adair County.

Cedar County—

Mechanicsville. Pinnated grouse and quail. High Mills pond, one mile north of the town, contains large sized black bass. In Cedar River, some miles south, are pickerel, bass and other varieties of fish. Reached via the Chicago and Northwestern Railroad. Hotel $1 to $2 boat and guide $3; teams $3.

Cerro Gordo County—

Mason City. Pinnated grouse, cranes, geese, ducks and quail. Reached via the Central Iowa, and the Chicago, Milwaukee and St. Paul Railroads.

Plymouth and Plymouth Junction. For game and route, see Greene, Butler County.

Cherokee County—

Aurelia. Excellent pinnated grouse shooting. Reached via the Iowa Division of the Illinois Central Railroad. Mr. Sperry will act as guide and furnish dogs.

Cherokee and Marcus. Game and route as above.

Clinton County—

Charlotte is on Deep River, which has been stocked with California salmon. Goose Lake, three miles southeast, is a great resort for sportsmen; geese, ducks and brant are very abundant there. Reached via the Chicago and Northwestern Railroad. Good accommodations will be found at the Sherman House.

De Witt. Pinnated and ruffed grouse, quail, ducks; black bass and pickerel. Reached as above, or via the Davenport and St. Paul Railroad. Hotel $1 to $2, private board $3.50 to $5 per week. Country rolling prairie.

Camanche, is on the Mississippi River, opposite the mouth of the Meredosia River, of Illinois. This last-named river has large meadows or dry marshes, extending for many miles along either bank, furnishing some of the best duck, goose, brant and crane shooting that can be found in the west. Thousands of these birds are shot here every season, and hundreds of sportsmen visit these grounds from all parts of the country. Camanche furnishes many of the outfits for these hunting parties. Reached via the Chicago and Northwestern Railroad. The New Haven Hotel, F. Anthony, proprietor, $2 per day.

Low Moor is four miles north of the Wapsipinicon River, a stream noted for its most excellent shooting. Ducks, geese, and brant abound on the river, and in the bayous setting into it. Snipe, several varieties, woodcock, pinnated grouse and quail are found in countless numbers along its banks. The river contains several varieties of fish. Reached as above. Hotel $1.

Wheatland is near the Wapsipinicon River. For game and route, see above. Hotel $2.

Dallas County—

Redfield. Pinnated grouse are very abundant, with quail sufficient for good sport. Board $2.50 to $3 teams $2 to $3.

Des Moines County—

Burlington. Ducks, geese, brant, quail, snipe, pinnated grouse, wild turkeys, and a few deer beyond the Des Moines River, on the line of the Southwestern Railroad. In the Mississippi River are wall-eyed pike, bass, croppies and sunfish.

Dickinson County—

Spirit Lake. Excellent fishing is found in Spirit Lake and Lake Okoboji. Pinnated grouse are very abundant in the vicinity, and the wild fowl include mallards, widgeons, grey ducks, canvas-backs, redheads, and other varieties of ducks, with good goose shooting.

On the shores of Okoboji, some Englishmen have built a shooting-box, and after the chicken and duck shooting in the fall, start from their pleasant headquarters on the lake, out upon the plains in pursuit of elk, buffalo, black and white-tailed deer, antelope, beaver, and other large game found there. A Mr. Van Steenburg, from New York State, also has a shooting box delightfully situated on the shores of another of the numerous and beautiful lakes. The weather continues very agreeable till after the middle of October, when it is apt to be cold and windy. The route is via the Sioux City and St. Paul Railroad to Worthington, thence a beautiful drive of thirty miles over the rolling prairie, and along the timbered shores of the numerous lakes which give to the country, in the Indian dialect, its characteristic name of "Minnesota," *land and water*. Comfortable accommodations will be found at Crandall's hotel. All the lakes and prairie lands in this region, are splendid sporting grounds.

Dubuque County—

Worthington, on the Sioux City and St. Paul Railroad. The two lakes, one east and the other west of the town, are the resort of many varieties of wild fowl, geese, ducks, etc. On the prairie are pinnated grouse in limitless numbers. Hotel accommodations.

Dubuque. Pike, black bass and white salmon in abundance. Excellent woodcock and duck shooting ten miles up the river. Reached via the Illinois Central, and the Chicago, Dubuque and Minnesota Railroads.

Fayette County—

Fayette. Fine bass fishing in the Little Volga. Fayette is on the Davenport and St. Paul Railroad, and furnishes good hotel accommodations. Ten miles west via wagon road, is *Wilson Grove*, a fine centre for pinnated grouse shooting.

Floyd County—

Rudd. Pinnated grouse shooting excellent. Reached via the Chicago, Milwaukee and St. Paul Railroad. A dog is necessary, also a team and driver, which are easily procured. The railroad conductor will give all necessary information in regard to the best localities on the prairies of this and the adjoining counties.

Marble Rock, *Nora*, *Rockford*. For game and route see Greene, Butler County.

Greene County—

Grand Junction. Excellent pinnated grouse shooting may be found anywhere along the line of the Keokuk and Des Moines Railroad, from Grand Junction to Fort Dodge, Webster County. As a rule, it is best to stop at a country house some miles out from the railroad, and on the line of some stage route.

New Jefferson. Pinnated grouse, quail, geese, ducks, cranes, etc. Reached via the Chicago and Northwestern Railroad. Hotel $2; teams $4.

Scranton Station is south of Coon River, which furnishes excellent fishing for pike, bass, pickerel, etc., and on the prairie the pinnated grouse afford excellent gunning. Reached via the Chicago and Northwestern Railroad. The Hunter House, by F. Foster, $2 per day.

Guthrie County—

Casey and Stuart. Quail, geese, ducks, plover, etc. See Des Moines, Polk County.

Hamilton County—

Webster City and Williams. For game and route see Hardin County.

Hancock County—

Garner, on the line of the Chicago, Milwaukee and St. Paul Railroad, from Garner to Algona, the sportsman will find excellent pinnated grouse shooting. Garner, Britt, Wesley and Algona are good initial points. The train conductors will give all necessary information, and at Garner, Robert Elder will direct to the Cottonwood Grove Camp.

Hardin County—

Alden and Iowa Falls. At any point west of Iowa Falls, on the line of the Iowa Division of the Illinois Central Railroad, pinnated grouse are found in great abundance.

Harrison County—

Dunlap. Pinnated grouse, quail, ducks, snipe, a few deer. Reached via the Chicago and Northwestern Railroad. Hotel $3; teams $4.

Little Sioux. Game is abundant, deer being especially plentiful. Reached via the Sioux City and Pacific Railroad.

Missouri Valley. Junction of the Chicago and Northwestern, and Sioux City and Pacific Railroads. The surrounding country is full of game. Geese, ducks, brant, ruffed grouse, pinnated grouse, quail, snipe, plover and woodcock are plentiful. Three hotels. The Missouri Valley Sportsmen's Club have their headquarters here.

Jackson County—

Baldwin, three miles from the Maquoketa River. Wild game of all kinds abounds in the vicinity. Reached via the Chicago and Northwestern Railroad. There is one hotel.

Maquoketa. See above.

Kossuth County—

Algona. Pinnated grouse, woodcock, snipe, and all kinds of wild fowl. Reached via the Chicago, Milwaukee and St. Paul Railroad. Good hotels.

Wesley. Pinnated grouse. Route as above.

Linn County—

Cedar Rapids. Pinnated and ruffed grouse, quail, ducks, geese, snipe; wall-eyed pike, bass, pickerel and white perch. Reached via Chicago and Northwestern, and other railroads. Hotel $2 to $3.

Marshall County—

Marshalltown. Pinnated grouse shooting. Reached via the Central Iowa Railroad.

State Centre. Pinnated grouse, snipe, ducks, sandhill cranes and quail. Reached via the Chicago and Northwestern Railroad. Hotel $1.50 to $3; teams $3. Country rolling prairie.

Muscatine County—

Stockton. Excellent shooting for pinnated grouse, ducks, brant, wild geese, snipe, rabbits, squirrels, etc. Sturgeon, pike, buffalo fish, perch and catfish are abundant in the Mississippi River. Reached via the Chicago, Rock Island and Pacific Railroad.

West Liberty. Duck shooting is excellent on the marsh and lake, where many varieties are found. Take the Chicago, Rock Island and Pacific, or the Burlington, Cedar Rapids and Northern Railroad.

Plymouth County—

James, Lemars and Remsen. For game and route see Alden, Hardin County.

Pocahontas County—

Fonda. For game and route see Alden, Hardin County.

Polk County—

Des Moines. Good pinnated grouse shooting is found on railroads running west and northwest from the city. From Des Moines northwest stop at Grand Junction, or Gowrie, north of there, or at almost any station west of Grand Junction. Going west from Des Moines, stop at Stuart and take stage line to Fontanelle, twelve miles out. Excellent shooting conveniences, and extends for twelve miles further. Twelve miles west from Stuart is Casey. Take stage from there to Fontanelle, twenty-four miles. Every foot almost abounds with chickens, and at almost any station west of Casey good sport can be had. Permission to shoot on the farms is easily obtained.

Pottawattamie County—

Avoca. See Adair, Adair County.

Council Bluffs. Deer, rabbit, squirrel, wild turkey, pinnated grouse and quail. Beaver and mink are trapped in the vicinity.

Neola. See Avoca.

Scott County—

Davenport. Mascalonge and black bass fishing in the Wapsie, a tributary of

the Mississippi, twenty miles above Davenport. Davenport is on the Chicago, Rock Island and Pacific, and the Davenport and St. Paul Railroad.

Shelby County—

Shelby. See Adair, Adair County.

Tama County—

Tama City. Pinnated grouse, quail, geese, ducks, teal and mallards in great abundance on the Iowa River; bass, pike and pickerel. Reached via the Chicago and Northwestern Railroad. Hotel $2; guide $2; team $; boat $1. Rolling prairie.

Webster County—

Fort Dodge. See Grand Junction, Greene County, and Alden, Hardin County.
Gowrie. See Des Moines, Polk County.

Winnebago County—

Lake Mills is located in a large belt of timber and surrounded by lakes, where the hunting is excellent. There are here in the spring and fall snipe, woodcock, field plover, curlew, morble, godwit, rail, yellow leg plover, black bellied plover, pinnated grouse, ruffed grouse, sharp-tail grouse, quail, wild pigeon, reed bird, sand-hill crane, the whooping crane, snow goose, white frontell, and Canada goose, with all the ducks except the black duck. Deer are found a mile from town. Elk are killed about thirty miles away, and bear also. Of fur bearing animals there are two kinds of wolves and a variety of foxes, with otters, minks, coons, skunks, badgers, squirrels and gophers.

Woodbury County—

Sioux City. Deer, turkeys, ducks, geese, quail and pinnated grouse are abundant. Reached via the Illinois Central and other railroads. Hotels $2.
Sloan. Deer, ducks, geese, quail and pinnated grouse. Reached via the Sioux City and Pacific Railroad. The surrounding country is valley land.

KANSAS.

Area 78,418 square miles, population 364,399. The face of the country is uniformly rolling prairie. There are no mountains in the State. The valleys of the Missouri and Kansas Rivers are well wooded, and very fertile when under cultivation; the Neosho Valley, which is mentioned hereafter, is famous for its agricultural wealth, and is one of the best game sections of the entire State. Kansas, as a game region, has few superiors, buffalo, elk, deer, antelope, with many kinds of smaller game; wild turkeys, ducks, geese, pinnated grouse and other game birds, make up a list full of attraction to the hunter. By a wise provision against shipping game from the State, the supply promises to be long unexhausted. The railroad and other traveling facilities are good and are constantly being improved. On any of the lines of railroads traversing the State, the devotees of rod and gun will find ample employment. The officers on these roads are generally well informed and will always give information and attention to those so desiring.

Allen County—

Humboldt. Deer, turkey, snipe, ruffed and pinnated grouse, quail, duck, geese, sandhill crane, curlew. The route is via the Missouri, Kansas and Texas Railway. Hotels $1.50 to $2; teams $2.50 to $4. Tents and other camping necessities can be secured. Big Creek, Marmarton and Fall Rivers are excellent camping sites.

Anderson County—

Colony, sixty-eight miles south of Lawrence, on the Leavenworth and Lawrence and Galveston Railway, is an excellent initial point for pinnated grouse shooting. Teams can be procured.

Atchison County—

Atchison. Excellent pinnated grouse, duck, goose and quail shooting in the vicinity. Atchison is easily accessible via the Central Branch of the Union Pacific, the Chicago, Rock Island and Pacific, and other railroads.

Bourbon County—

Fort Scott. Pinnated grouse, quail, Wilson snipe, woodcock. Within sixty-five miles are fine duck, goose and turkey shooting grounds. Fort Scott is on the Missouri, Kansas and Texas, and the Missouri River, Fort Scott and Gulf Railroads. Hotels $2 to $3; teams $4 to $5. Rolling prairie and hilly country.

Coffey County—

Burlington. A few turkeys, pinnated grouse in abundance, quail and snipe, deer and jack-rabbits; bass, pike, pickerel, buffalo and other varieties of fish. The best fishing and shooting grounds are the Neosho River, Wolf, Turkey, and Crooked Creeks, and Swan, and White Lakes. Reached via the Missouri, Kansas and Texas Railway. Hotels, $1.50 to $2; teams, with drivers $3.50 to $4.50. Good camping grounds.

Crawford County—

Hepler. Excellent pinnated grouse, quail and duck shooting. Reached via the Missouri, Kansas and Texas Railway. A small hotel. Two and one half miles from the depot is an old Kentuckian, who will act as guide and furnish dogs.

Douglas County—

Lawrence. Pinnated and ruffed grouse, and quail. Deer on the bluffs of the Rock River shore; deer, duck and snipe shooting, with excellent fishing on the Wapsie. Wild turkeys, Canada geese, brant, and many varieties of duck abound. Easily accessible by rail. Hotels $3; teams $2 to $3.

Ford County—

Dodge City. A point from which to reach the antelope hunting district to the west. Reached via the Atchison, Topeka and Santa Fe Railroad.

Fort Dodge. Buffalo, deer, antelope, turkeys, geese, teal, mallards, shovel bills, widgeons, butter-ducks, shell ducks, herons, cranes, quail, grouse, field-plover, yellow-legs, jack snipe, and pigeons, are found about the small tributaries of the Cinnamon River southeast of Fort Dodge.

Labette County—

Chetopah. A place of fifteen hundred people, and one of the most thriving in Kansas. One of the best chicken centres in the United States. Deer and pinnated grouse, by the hundred, can be got within two or three miles of town. Good hotels, guides, wagons, outfits, tents, etc. A station on the Missouri, Kansas and Texas Railroad.

Parsons. The Labette River, one mile southwest of town, affords fine duck shooting; the marshes, meadows and prairies in the vicinity offer splendid grouse, quail and snipe shooting. Reached via Missouri, Kansas and Texas Railroad. The Belmont, Lockwood and St. James Hotels are near the depot, and the proprietors are well posted as to the country. The town has good livery stables; there are also quite a number of sportsmen, and some fine dogs.

Lyon County—

Emporia, is situated between the Neosho and Cottonwood Rivers. These with their numerous tributaries in the neighborhood, offer excellent sport. Quail, grouse, snipe, duck, geese, brant, curlew, and plover in immense quantities, with now and then a deer. Reached via the Missouri, Kansas and Texas Railroad.

Marshall County—

Beattie. Pinnated grouse. On the St. Joseph and Denver City Railroad.

Miami County—

Paola. Deer, jack-rabbits, pinnated grouse, wild turkeys, quail, ducks, geese, swan, snipe; several varieties of fur-bearing animals. Reached via the Missouri River, Fort Scott and Gulf Railroad. Hotel and private board 75 cts. to $2; teams $2 to $4. Rolling country, with excellent camping grounds.

Montgomery County—

Coffeyville. Pinnated grouse and quail shooting, very fine in the immediate vicinity, with ducks and geese. Bass fishing. Ten miles south in Indian Territory, are deer and wild turkey. Reached via the Leavenworth, Lawrence and Galveston Railroad. Hotel, $6 per week.

Independence. Liberty Lake affords fine duck, plover and snipe shooting. Pinnated grouse are abundant, and deer and turkeys twenty miles distant. Route as above.

Morris County—

Council Grove. Pinnated and ruffed grouse, quail, snipe, ducks, cranes, and other game in great plenty, on the prairie lands, two to twelve miles west of the town. Reached via the Missouri, Kansas and Texas Railway. The Old Commercial Hotel, $2; team $5.

Neosho County—

Osage Mission. The Neosho River, marshes, meadows and small streams afford excellent duck, snipe and plover shooting, while on the prairies, and among the brush and corn-fields near at hand, quail, chickens and rabbits are very abundant. The depot agent will show sportsmen good grounds, and direct them to first-class accommodations. Reached as above.

New Chicago. A few deer and wild turkeys. Geese, brant, ducks, mallards, wood ducks, widgeons, teal, redheads, pin-tails, spoon-bills, canvas-backs and others. Pinnated grouse are very abundant. Quail, snipe, plover, and curlew shooting. Common and jack-rabbits. Reached via the Missouri, Kansas and Texas Railroad. Good hotel accommodations.

The Neosho River Valley, along the line of the Missouri, Kansas and Texas Railroad, affords excellent shooting. Quail, pinnated grouse, snipe, ducks and geese, antelope, and jack-rabbits are found within short distances of the railway. The railroad officials will give all needed direction to the best game localities.

Ottawa County—

Delphos. Grouse and quail.

Reno County—

Hutchinson is a good point from which to start south for the antelope country. On the Atchison, Topeka and Santa Fe Railroad, one hundred and sixty-eight miles from Topeka. Fit out at Hutchinson, thence ride fifty miles south over the prairie. The country is rolling prairie, covered with buffalo grass. Ducks, geese and prairie chickens abound.

Russell County—

Russell. Elk, antelope, buffalo occasionally, deer, jack-rabbits, coyotes, grey wolves, quail, pinnated and sharp-tailed grouse, and a few dusky grouse. Reached via the Kansas Pacific Railway.

Saline County—

Brookville. Excellent pinnated grouse and quail shooting; jack-rabbits and antelope. Reached via the Kansas Pacific Railway, thirty-two miles from Topeka.

Wallace County—

Fort Wallace. Buffalo, black tail deer and antelope. Reached via the Kansas Pacific Railway.

Woodson County—

Neosho Falls. Geese, ducks, snipe, woodcock, pinnated grouse, quail, rabbits,

jack-rabbits, squirrels. A few deer and wild turkeys. Bass, sun, cat and buffalo fish, and mullets. Reached via the Missouri, Kansas and Texas Railroad. Hotels $2; team and driver $3.

KENTUCKY.

The area of the State is 37,680 square miles; the population was, in 1870, 1,321,011. The Cumberland Mountains, which form the western boundary of the State, have several spurs extending through the eastern and south-eastern counties to Wayne County. The central and northern counties are hilly and rolling. The western section of the State is a table land intersected by numerous rivers which have worn deep furrows often reaching a depth of 400 feet, and giving to the country a hilly appearance, where in reality no hills exist. The inland river communication of the State is very extensive and the natural facilities thus afforded have been augmented by a series of artificial locks and dams. All parts of the country are easily accessible, by boat, rail, or good carriage roads. There will usually be found good hotel accommodations, and where these do not exist the stranger will find no lack of hospitality among the people. The game of the State is for the most part confined to the smaller varieties. Fox hunting with hounds is a favorite sport. There are some deer among the mountains in the eastern districts. The blue grass country abounds in woodcock and quail. The farms are large, generally not posted, and an opportunity for good shooting always afforded.

Bourbon County—

Paris. Good red fox hunting in the vicinity. Reached via the Kentucky Central, and Maysville and Lexington Railroads.

Campbell County—

Newport, on the Ohio opposite Cincinnati. Ducks are plentiful and wild turkeys abound within a radius of ten miles. There is excellent spoon-trolling for southern black bass. On the Louisville and Cincinnati Railroad.

Carroll County—

Carrollton. Quail and rabbit shooting good along the rivers. Reached via Ohio River steamer.

Ghent. See above.

Clark County—

In the *Red River* is excellent black bass fishing. Take Louisville, Cincinnati and Lexington Railroad to Winchester, thence via wagon.

Franklin County—

Frankfort. In the Kentucky River are black bass, salmon, silver perch, and near its source, pike are abundant. The best locality for fishing is in the Elkhornt a small tributary of the Kentucky, a few miles below Frankfort, where are grea, numbers of black bass. The stream is narrow, shallow, rocky and hill-bound, requiring constant wading. In Black's Pond, four miles distant, are caught perch, dark grey, and silver, and black bass.

Gallatin County—

Warsaw, on the Ohio River, midway between Louisville and Cincinnati, on the L. C. and L. R. R., is a good starting point for quail grounds. Turkeys, rabbits, pigeons, and some teal can also be had. Only a small part of the district is posted, and gunners have a fair showing. Board can be obtained at reasonable rates.

Grant County—

Williamstown. Partridges, pheasants, woodcock, rabbits and squirrels. Reached via rail and stage from Covington.

Hopkins County—

Ashbysburg, on the Green River, is in the vicinity of good squirrel, quail and rabbit shooting. Reached by rail to Madisonville, thence drive, or via Green River steamboats.

Jefferson County—

Louisville. Quail and ruffed grouse in the vicinity. Mr. J. P. Johnson, of the Galt House, will give every information in regard to localities.

Hickman County—

Columbus. Bears, deer, wild turkeys, ducks, geese, with an abundance of small game. Good hunting is also found on the other side of the Mississippi River, in Missouri. Reached via the Mobile and Ohio Railroad, or via steamboat. Board $1.50 to $2, $4 to $5 per week; boats and guides $3; teams $3.

Lincoln County—

Stanford. Quail and rabbits; good bass fishing. Via Louisville, and Nashville and Great Southern Railroad, six hours from Louisville.

McLean County—

Calhoun. Green River is from eighty to one hundred and twenty-five yards in width, and from twenty-five to one hundred feet deep from the mouth to Calhoun, distant seventy miles. Lock and Dam No. 2 is situated at Calhoun, and in May and June one can have tolerably fair sport catching bass below the falls. But of all the fish famous in the waters of this river is the catfish; they grow to immense size, and as they suffer less from the nets than other fish they are still tolerably plenty. In the oak and hickory flats along the river bottom are plenty of squirrels; quails and rabbits are abundant on the hills; geese and ducks in limited numbers. Reached via Evansville, Owensboro' and Nashville Railroad to Livermore, thence wagon, or by river steamer.

Mason County—

Maysville. Good quail shooting. Reached via the Maysville and Lexington Railroad.

Mercer County—

A good shooting ground for small game. Coons abundant.

Oldham County—

La Grange. Quail and rabbit shooting. Reached via Ohio River boats.

Pendleton County—

Falmouth. Bass and red-eye fishing is good in the Licking River, at Falmouth, and other points on the line of the Kentucky Central Railroad.

Powell County—

Stanton. Fine bass and pike, (locally known as "jack") fishing in the Red River. Deer hunting in the vicinity. The route is from Lexington via the Louisville, Cincinnati and Lexington Railroad to Mt. Sterling, thence via private conveyance. Provide camping equipments.

Woodford County—

Midway. Ducks and jack snipe. Bass fishing. Reached via the Louisville, Cincinnati and Lexington Railroad.

LOUISIANA.

This State embraces a great deal of flat country, much cut up by rivers, bayous, lagoons, marshes, and intricate water courses. The water surface of Louisiana, excluding the rivers and the bays, which open out into the Gulf of Mexico, is 1700 square miles. This includes Lake Pontchartrain and all the many fresh water lakes in the interior of the State. The coast marshes are peculiar—mostly affected by the tides of the lakes—are covered with a tall rank growth of reed and grass, ranging in height from three to six feet, and almost impenetrable. Throughout this region are found shell-banks, or islands, showing unmistakable indications that, at some remote period, this whole expanse of marsh land must have been covered by the waters of the sea. The people burn the grass in early fall to afford "snipe burns" where the birds feed in great numbers, and along the edges of the bayous and lagoons the grass is permitted to grow, as it furnishes the best of blinds for concealment in ducking. In ducking, the prevailing custom is to hunt in the pirogue; very cranky specimens of the ship-builder's craft to the inexperienced. To the experienced, the pirogue is safe and comfortable as a Clyde steamer, and the writer remembers having frequently seen men so expert as to stand upon the gunwale and shoot or paddle without materially rocking the boat. The parishes which have the greater part of their surface covered with this marsh are Cameron, Vermillion, St. Mary's, Terrebonne, La Fourche, Jefferson, Plaquemines, St. Bernard and Orleans. In all of them there are other kinds of surface; belts of very fertile alluvial land along the bayous, some prairie in Cameron, a good deal in Vermillion and a less amount in St. Mary's.

Excepting the planters living on the bayous, the population of the coast-marsh region is sparse, and consists mostly of hunters and fishermen. West of Bayou Teche and south of Bayou Cocodné are the prairie lands, broken up by numerous bayous, creeks and forests. In the middle and northern tier of counties, the State is very heavily timbered and thickly intersected by bayous, many of them navigable and all affected in volume by the rise and fall of the Mississippi, into which all their waters eventually empty. The cutting of the levees by Grant at Lake Providence near Vicksburg, overflows all the low lands of that section every spring, the water usually rising in March and falling in April. These annual overflows drive the deer from their swamp coverts to the uplands which are not subject to overflow, and at that time the shooting is better than at any other, as, the deer being confined in a limited area, there is no trouble in starting them, and once started, if one knows the land, and has a good horse, he need seldom fail

of a shot. Mallards are found here in countless numbers in the bayous and swamps, and quail and woodcock are plenty.

Carroll Parish—

This is an excellent shooting ground for bears, deer, wild turkeys, rabbits, quail, ducks, geese and many other varieties of game. For description of country see above, and East Baton Rouge Parish. Providence, on the Mississippi River, is a good centre.

Catahoula Parish—

Catahoula Lake is a fine ground for ducks and geese. Deer and quail are plenty in the vicinity.

East Baton Rouge Parish—

Baton Rouge. Take the steam ferry to Allen Station, a mile above the town, and go out on the railroad which runs west from the Mississippi River, in the parish of West Baton Rouge, to Livonia, in the parish of Point Coupee, twenty-eight miles, and from thence is graded twelve miles to the Atchafalaya River. The country is level, and where not reclaimed, is swamp and dense canebrake, abounding in deer, bear, wild turkey, etc. It is subject to overflow from the Mississippi, in case of breaks in the levees. Bayous Grosse Tete, Fordoche, and smaller streams run through the country, and at low water afford good fishing for trout, perch, white cat, etc. The trains run twice a week from Allen Station. The accommodations on the line of the road are poor.

The country on the east side of the Mississippi is high and rolling; the streams, of which the principal are the Amite and Comite Rivers, are clear, and afford excellent sport, fishing for trout, various kinds of perch, white cat, etc. The woods abound in squirrels, wild turkeys, rabbits and deer; the fields with quail, doves, larks, etc., and in winter, snipe, ducks, woodcock, robins, wild pigeons, etc. Transportation is abundant and very cheap. Parties who go with the intention of camping, generally send the conveyances back, to return for them at a specified time. A carryall with seats for fifteen persons, four horses and driver, can be had for $12 per day. Board $1.50 to $2 per day; by the month, $30 and $25.

Grant Parish—

In the Flagon, Clear, Big and Trout Creeks, are found bass, pike, perch, catfish, bar-fish and buffalo-fish; in the vicinity are quail, ducks and geese—abundant in Catahoula Lake—wild turkeys, deer, bears, panthers and wild cats. Take Red River steamers to Coltax. The bottom lands are heavily timbered with cottonwood, ash, willow, holly, cypress, and the grand magnolia, and a dense undergrowth. There is generally an open, clear space of from ten to fifty feet along the margin of the stream, thus giving ample room to cast the line.

Iberia Parish—

New Iberia. The sea marshes abound in deer. Geese, ducks, brant, woodcock, snipe, rice birds and pinnated grouse, are found on the marshes and prairies.

Madison Parish—

In the streams of this county is excellent fishing. The swamp and dense canebrakes are full of bears, deer, wild turkeys and other game; the woods afford good shooting for many kinds of birds and animals; the fields are filled with quail, doves, etc. Take Mississippi River steamer to Delta, thence stop at any of the stations on the line of the Vicksburg, Shreveport and Texas Railway.

Morehouse Parish—

In the dense canebrakes are bears, deer, wild turkeys, etc., with wild fowl of many varieties, and good fishing in all the streams and bayous. (See description of the northern counties above.) Take rail to Raysville, via the Vicksburg, Shreveport and Texas Railroad, and thence drive to Bastrop.

Orleans Parish—

New Orleans. The best points most accessible from New Orleans are Miller's Bayou, Chef Menteur, Bayou des Allemandes, and Bayou Labranche. The first two named are situated upon the Mobile Railroad, the latter, respectively, upon

Morgan's Railroad and Jackson Railroad. At Miller's, the hunter or fisherman, as the case may be, finds a camp, so to speak, of three or four houses, situated upon a shell island of the prairie near the shore of Lake Catherine, and directly upon the bayou, where ample provision is furnished—such as pirogue, decoys, a clean bunk, and plenty of duck, and fish, and coffee, and other consolation for the inner man, all for a moderate sum; and at an equally modest sum can be procured guides. These guides are experienced in manœuvering the pirogue across the betimes angry waves of Lake Catherine, or through the intricate maze of a crooked, narrow bayou. Woe to him who, under "Tom's" care, fails to kill ducks at Seven Ponds, Bayous Bob, Pecan, or Cassenay, at Grand Point, or the Corridors, or snipe on Frederic Burn, or Ween's Island! Black, grey, mallard, canvas-back, teal, "fan-fan," "*bec see*," "*dos gres*," and many varieties of duck, with names peculiar to the creole vocabulary, are found here in great numbers, from November 1st to March 1st. Prior thereto and after, large bags are not frequent. Miller's Bayou offers red fish, sheepshead, green trout, and striped bass. The fare from New Orleans to Miller's Bayou is $1.50. Other favorite spots near the city for teal, canvas-back and red head shooting are along the upper line of Canal Street, at the Lake Swamp, and Little Lake. Twin Lakes, two miles from Miller's Bayou, is a famous place for ducks.

Plaquemine Parish—

The vicinity of the mouth of the Mississippi is a resort for great numbers of ducks. Hunters there kill sometimes one thousand in a day.

St. John Baptist Parish—

Bayou De Sair, on the west shore of Lake Pontchartrain is noted for its fine fishing. In the adjoining cypress swamp is good deer and bear hunting.

St. Maro's Parish—

Bayou Teche, Irish Bend. Jack snipe, wood duck, quail, woodcock shooting.

St. Tammany Parish—

Mandville is a pretty summer bathing, and winter hunting and fishing resort for New Orleans people, situated thirty miles from the city, on the north shore of Lake Pontchartrain, which is crossed every day by an elegant passenger steamer.

The game consists, along the coast, of what the French Creole citizens call the *grusse*, a very small bird; two varieties of the *cye*, somewhat larger; magnolia birds, robins, snipe, woodcock, cedar birds, French and English duck, teal in abundance, wild geese, *Poules d'eau* and *Peppebot*, rail, snipe, with half a dozen other less important varieties.

The northern part of this parish, near Pearl River, is thinly inhabited, and abounds in wild pine, live oak, and magnolia forests and swamps. Here large numbers of deer, wild turkeys, quails, and squirrels, and occasionally a few bears and wild cats are killed.

Lake Pontchartrain is generally brackish, sometimes quite fresh from the Mississippi crevasses, and sometimes again quite salty. The fresh water streams that flow into it from the pine hills, abound in yellow and red perch, with some pickerel, and not a few "green trout" the local name for the black bass. It is the favorite fresh water game fish. The Tangipahoa River, twenty miles from here, contains a species of fresh water speckled trout, and many large rock fish, which, like the green trout, are caught with a "bob."

Lake Pontchartrain is a glorious fishing ground. With a crab and cast net, the angler can catch all the red crawfish, crabs, shrimps, and mullets he wants for bait (or food) in a few moments. With these he can, from a bath house, wharf or boat, catch striped bass, the famous sheepshead, redfish, sea perch, sea trout and croakers, not to mention a superior quality of speckled catfish. The fishing is good all the year round, but best in the winter. Striped bass are most plentiful almost all winter. Sheepshead abound at this season, but are difficult to catch with a hook, from lack of proper bait.

The redfish is quite plentiful. And he is the gamest fish in the lake. With mullet for bait and a reel, the sport of playing him is magnificent. He is the staple good salt water fish of the South, and bites well on the Gulf coast all the year round.

The speckled sea trout are found a couple of months in the autumn, and bite voraciously at any kind of bait, "bob" or fly. The croaker is a beautiful sil-

very symmetrical fish, and derives its name from the croaking noise it makes when caught. As a table fish, it may be said to be quite as popular as the sheepshead, and is in great demand. It is caught from boats, out a mile or so in the lake, and with hand line, with soft shell crabs or mullets for bait. It goes in schools and bites eagerly.

Tensas Parish—

In this county are many canebrakes, which are filled with large game, such as bear, deer, etc. Wild turkeys, quail, rabbits, squirrels, ducks, geese, and other game are abundant throughout the county. Take Mississippi River steamer to St. Joseph or Water Proof, which will be found good centres for sport.

MAINE.

Maine, the largest of the New England States, has an area of 31,766 square miles, with a population of 626,915. Upon the coast are many bays and inlets, with numerous peninsulas and many beautiful islands, making the whole coast line 2,500 miles. The rivers of the State are numerous and several of them of large size. The State is everywhere dotted with a great number of lakes of all sizes, which with the rivers constitute one-tenth of the whole area of the surface. An irregular continuation of the White Mountains of New Hampshire extends along part of the western side of Maine, thence crossing the State in a north-eastern direction, forms the scattered hills, which terminate in Mars Hill, on the eastern boundary. There are other ranges of high lands, and the surface is generally hilly and broken. Three-fourths of the whole area are still covered by the primeval wilderness, in whose forests lurk great quantities of the wilder varieties of game. Bears, deer, moose, etc., are abundant, and foxes, beavers, otters, minks and various other fur bearing animals furnish a support to numbers of trappers. The lakes and rivers are noted throughout the country for their fine fishing, and these waters are also excellent shooting grounds for all kinds of wild fowl. The means of communication are generally good in the settled portions of Maine, but in the wilderness guides are necessary; the favorite method pursued by sportsmen is to strike into the wilderness, where guides are necessary, and may always be secured.

Aroostook County—

The best of fishing is found in the chain of lakes above Grand Lake. The number of lakes there is legion, and the fishing magnificent and easy of access. Go to Bangor, thence via the E. and N. A. Railroad to Wina, then team to Springfield, twenty miles (good road) to Duck Lake, canal across Duck Lake to Junior Lake, across Pocumpus to Syssylladobsis. This route can be made from Bangor in one day. There are some fifteen or twenty large lakes that are accessible with a canoe, with short thoroughfares between and good fishing in them all. But few fishermen go there, and a party could have it all to themselves. Plenty of landlocked salmon. Also some brook trout (small, two pounds is large) and any number of togue, pickerel, and white perch. The best

time for catching the salmon is from the last of May to the first of July. The close time commences here the 15th of September, so there is no fishing in the fall. The salmon do not commence running till the last of September.

Sherman Mills. Trout, togue, ruffed grouse; ducks, moose, caribou, bears. A good guide can be obtained at a fair price. Write for information to Ed. A. Cushman.

Cumberland County—

Sebago Lake, fourteen miles long by eleven miles wide, contains fine salmon trout of a peculiar variety. They are very large, averaging double the size they do in the eastern part of the State. They vary from six to seventeen pounds, and are of a bright silver color, with very few large black spots on the sides near the back, so nearly resembling the grilse that the difference can hardly be perceived. They begin to run up the streams the first of September and continue to do so till they spawn, which is in October. They also run up in May, about the fifteenth, and stay up about two or three weeks. Sebago Lake is situated fifteen miles from Portland. The Ogdensburg Railroad runs past it.

Portland. The game includes the grey coot, with other varieties, black duck, teal, loon, red diver, sheldrake, old squaw, grebe, yellow legs, snipe, woodcock, ruffed grouse, squirrels; trout.

Franklin and Oxford Counties—

The *Rangeley Lakes.* This chain of lakes consists of Rangeley, or Oquossoc, nine miles long, Cupsuptic, seven miles, Mooselucmaguntic, or Great Lake, fourteen miles, Molechunkamunk, or Upper Richardson, twelve miles, Welokennebacook or Lower Richardson, and Umbagog, twelve miles. The last lies partly in Coos County, New Hampshire. All these lakes are connected by thoroughfares; the distance between them is from one to six miles. The surrounding country with the exception of the northern shore of Rangeley and the southern shore of Umbagog, is an unbroken wilderness. The lakes are far famed for their rare fishing; the trout taken from them are among the largest found in the country. The game of the region comprises moose, deer, caribou, black ducks, sheldrakes, pigeons, partridges.

Lake Umbagog. The hotels at Upton are the Lake House, H. R. Godwin, and Umbagog House, W. J. Abbott. Terms at each $2 per day, $7 to $10 per week. Good fishing is found near the hotels.

Lower Richardson Lake. The Middle Dam Camp, or Angler's Retreat, H. R. Godwin, $2 per day. The best points for fishing are; the Dam, the Pond in the river, Smooth Ledge, the Hop Yard, and other places to which guides can direct.

Andover. The Andover House, A. W. Thomas, $2 per day, $7 to $10 per week. In the vicinity of Andover are several good trouting streams, to which Mr. Thomas will direct the angler. The best known are Black Brook, Sawyer's Brook, Old Maid Brook, Frye's Brook and Burrough's Brook, all of which are within convenient distance from the hotel. The fish in these streams average from one-fourth to two pounds in weight.

At the approach to Upper Richardson Lake, from below, off *Metalic Point*, is fine fishing. Three miles from here is *Metalic Pond*, where ducks of several kinds, deer, caribou, and an occasional moose are seen. Metalic Brook, which flows into the pond, affords fine trout fishing.

Upper Richardson Lake. The Upper Dam Camp, H. R. Godwin, $2 per day. At the piers and apron of the dam, the mouth of the river, and Trout Cove, good fishing will be found. A sail of three miles, and a walk of three miles, brings the angler to Richardson Pond, whose shores are heavily wooded and frequented by deer, caribou and other game.

Phillips. The Barden House, Samuel Farmer, and the Elmwood House, E. D. Prescott. Terms of each $2 per day, $7 to $10 per week. There is excellent brook trouting in the vicinity, to which the anglers will be directed from the hotels. The Sandy River Ponds, and other waters on the road between Phillips and Greenvale, contain fine trout.

Rangeley Lake. The hotels are at Greenvale, the head of the lake, the Kimball Hotel, H. T. Kimball, and at the outlet, the Mountain View House, H. T. Kimball. Terms of each $2 per day, $7 to $10 per week. At Rangeley is the Rangeley Lake House. Rangeley affords the finest fishing of the chain; the favorite points being near Kimball's, at the head of the lake, and at the South Bog, the dam, and the outlet. From Greenvale, Kennebago Lake is eleven miles distant.

Fine fishing may be found there. The new hotel at Rangeley City is now ready for the public. The former landlord of the old Rangeley Lake House, Mr. Eben Hinkley, is to be found in the new house, two stories in height, all finished and furnished in the best manner. Fishermen, and those who desire a quiet, home-like house in the midst of the best trout fishing in New England, would do well to correspond with Mr. Hinkley for terms, etc., which will be reasonable. The arrangements are completed for a through stage, direct from Phillips to this place, arriving here in season for dinner, the second day from Boston, via Eastern or Boston and Maine Railroad. The fine little steamer Molly Chunkamunk, takes parties from here to all parts of the lakes.

Indian Rock is at the junction of the Kennebago and Rangeley streams. Camp Kennebago, O. T. Richardson, $2 per day.

There are several routes to this chain. 1. From Boston via Eastern, or Boston and Maine Railroad, fare $5, or via steamer, fare $1, to Portland; thence via Grand Trunk Railroad to Bethel, whence stages run to Upton, on Lake Umbagog, fare $2. From Upton, steamers to the inlet, twelve miles, fare $1.50, whence a team conveys baggage four and one-half miles to the Middle Dam Camp. Round trip ticket from Boston to Bethel and return, $7, Upton and return, $13. 2. From Portland as above to Bryant's Pond, thence stage to Andover, twenty-one miles, fare $1.50, where teams, boats and guides can be procured of Mr. Thomas for the Arm of the Lake, twelve miles, and the Middle Dam Camp, four miles beyond. Thence via boat to the Upper Dam, and across the carry to the lakes. Charge for transporting boat across the carry, $1. Round trip tickets, via this route from Boston to Bryant's Pond and return $7; to Andover and return $9; to Richardson Lakes and return $13; to Middle Dam and return $15; to Upper Dam and return $16. 3. From Portland as before to North Stratford, thence stage via Colebrook and Dixville Notch to Errol Dam, fare $4, thence steamer across Umbagog to the Inlet, fare $1, thence boat up the river to Five Mile Rapids, and a carry five miles to Middle Dam. Fare from Boston $13. 4. From Boston to Colebrook, via Boston, Concord and Montreal Railroad, fare $10.70; to Errol Dam and return via Colebrook, $17. 5. From Portland via Maine Central Railroad to Farmington, ninety miles, thence stage to Phillips, eighteen miles, fare $1.50, thence stage to Greenvale on Rangeley Lake, eighteen miles, fare $2. From Greenvale via steamer, fare $1, across the lake to Camp Henry at the Outlet, thence a carry of two miles, brings the tourist to Camp Kennebago. Round trip tickets, Boston to Farmington and return $9; to Phillips and return $11; Greenvale and return $14; Upper Dam and return $17. 6. From Canada and the west, take Grand Trunk Railway to North Stratford, Bethel or Bryant's Pond, thence as above. 7. From the White Mountains, go via Gorham or other points on the Grand Trunk Railroad, to Bethel, etc., as above.

The Megalloway River and Lake Parmachene. Take the Grand Trunk Railway to Bethel or Upton, stage to Errol Dam, steamer to Durkee's Landing, thence up the river in boat. There are several carries, and the river is subject to sudden freshets at all times of the year. Excellent trouting, the fish averaging two pounds, ducks, partridges, deer and moose, and other game will be found in the route.

Hancock County—

Sullivan. Trout, lake trout, ducks, geese, coots, and loons, etc., in Tunk Pond. Reached via steamer from Boston via Rockland.

Ellsworth. Reed's Pond, near this town, contains landlocked salmon. The route is via stage or hired conveyance from Bucksport.

Mount Desert, a favorite seaside resort, combines more trout and salt water fishing within a smaller radius than any other resort that we know of. We have taken pound trout from Eagle Lake, only about two and a half miles from Bar Harbor, on the ocean. It is beautifully situated up among the Mount Desert hills, and is well worthy a visit. Jordan's Pond affords good trout fishing. It is reached by wagon road from Bar Harbor. Long, and Denning's Lakes near Southwest Harbor are well stocked with fish. Lorne's Sound has excellent boating and fishing. Make headquarters at Lime's Tavern, Somerville, at the head of the Sound. From this point the central lakes are easily reached. There are several hotels or large boarding houses on the Island, where accommodations can be obtained for about $10 per week. The principal ones are the Island, Ocean, and Freeman Houses at Southwest Harbor, and fourteen houses or more at Bar Harbor. Steamers leave Portland daily for Mt. Desert, fare $5.

Bucksport. Deer and grouse shooting, with excellent fishing in the vicinity. Reached from Bangor, or Boston via boat.

Kennebec County—

Hallowell. Woodcock, grouse and partridges. Reached via the Maine Central Railroad, two miles from Augusta.

Augusta. Black bass fishing in the neighboring lakes.

Oxford County—

Grafton. Good partridge shooting in this section. The country is rough and birds plenty, and there is a first rate hotel.

Gull Pond and Dodge Pond. On the 10th of October—or within three days of that date—the outlets of Gull Pond and Dodge Pond, both emptying into Rangeley Lake at points six miles apart, and the outlet of Rangeley Lake, six miles from Dodge Pond, are thronged by myriads of fish known as blue backed trout. The waters of the stream are actually filled with this crowding multitude, gathering to deposit their spawn. They do not make a "spawning bed," like the salmon and trout, but deposit their eggs in all parts of the stream, remaining about ten days, when they return to the lake, and are never seen until the 15th of October the following year.

The variation between the blue back and the brook trout is plainly noticed. The former are more slender, have no bright vermilion spots; the ventral, anal, and pectoral fins are a bright scarlet, without the black and white lines so conspicuous in the other. The tail is more forked. As their popular name indicates, they are very dark. The most singular fact of all is the uniformity of size. They are never less than seven nor more than nine inches in length, weighing from three to four ounces. They never take fly or bait. They are captured in nets by the bushel; are not considered as good eating as the common brook trout.

For Rangeley Lakes see Franklin County.

Penobscot County—

Bangor. There are pickerel, perch, bass, and lake trout in Pushaw Pond, six miles from town, and landlocked salmon in Reed's Pond, within twelve miles, and trout in the tributaries of the Penobscot. Good trouting in the Kenduskeog, and other streams in the vicinity. The fishing is very good within a dozen points easily accessible, and hunting also in its season. There is a good hotel at the lake. Stages connect Bangor with Moosehead Lake.

North Milford. Grouse and other game in the vicinity, though the dense woods and swamps render wing shooting difficult. For deer the best locality is Brandy Pond, about twenty miles distant, and along the Big Buffalo, which empties into the Brandy Stream, the outlet of the lake, and a tributary of the Union River. Take the Eastern and North American Railroad to Milford, thence via stage or hired conveyance. James Fothergill, Jr. will entertain sportsmen and act as guide.

Piscataquis County—

In *Sebec Lake* are landlocked salmon, and pickerel; ducks, grouse, and rabbits in abundance. Go via European and North American Railroad to South Sebec, thence by stage to the lake. The line of country opened by this road from Bangor to the St. John River is teeming with glorious trout brooks and lakes. The sportsman can not go amiss here. Every man on the railroad is a sportsman and a gentleman, from the president and superintendent to the brakesman. The postal clerks are all anglers, and will take pleasure in imparting information to visitors in search of a few days' recreation.

Phillip's Pond, one mile from Sebec Lake, is noted for its fine togue or lake trout. Take the route as given to Sebec.

Monson is an excellent centre for trout fishing. Within a radius of seventeen miles there are thirty-two ponds, all of which afford magnificent sport. These waters are known as Hebron, Monson, Spectacle, Doughty (2), Bunker (2), Bog Stream, Bell (2), McLan, North Moors, Bear, South Senior, South Junior, Meadow, Meadow Stream, No. 18, Grindstone, Buttermilk, Benson, Ship, Greenwood (3), Long, Hedgehog, Big Indian, Little Indian, Herring and Greenleaf. Ship Pond also contains landlocked salmon. These lakes are situated in a rugged, mountainous country, full of romantic scenery. They are easily accessible by the Bangor and Piscataquis Railroad to Guilford, thence via stage fifteen miles to Monson, where a good hotel will be found. Sportsmen from abroad should call on Mr. E. R. Haynes, the postmaster, who will give them all possible attention, and direct to the best fishing grounds.

Moosehead Lake. The shooting to be found at and about Moosehead Lake and its adjacent waters, embraces deer, caribou, bears, wolves, an occasional moose, squirrels, hares, ruffed grouse, ducks, geese, sand pipers, loons and herons. Spencer Pond, at the head of Moosehead Lake, is a breeding place for black ducks, and Lucky Pond is a favorite resort for them. These are fifteen miles from Kineo, and twenty from Greenville. Ruffed grouse are abundant most everywhere, and deer also on Spencer Mountain, a mile from Moosehead Lake. A great variety of game is found at Brassua Lake, near the Canadian Line, at the head of Misery River. The Wilson Ponds are full of trout. The nearest pond is three miles from the lake, and reached by a good road; boats can there be procured. Three miles beyond is the Upper Wilson; camping is necessary for much sport.

Eagle Stream. This is a short distance from the Lake House at Greenville, and affords good trout fishing. The stream flows through a meadow, and there are no bushes to obstruct the casting. For larger trout go to the outlet, twelve miles from Greenville, where trout averaging two pounds are caught in abundance.

Table Rock at Mt. Kineo, is a favorite spot for fly fishing, and a short distance from the hotel, a well known spot furnishes trout averaging five pounds, and white fish averaging one and a half pounds. Misery Stream, flowing into Lake Brassua near its outlet, Socateau River, Spencer Pond, Roach River and Lucky Pond, are all fine fishing grounds. Lily Boy furnishes excellent trouting, with duck and partridge shooting.

The routes from Boston are: 1st. Via Eastern Railroad to Dexter, two hundred and thirty miles; stage thirty five miles to Greenville, thence steamer twenty miles to Mt. Kineo. Time twenty four hours. Fare for round trip $15; single ticket $8.50. 2d. Eastern Railroad to Guilford, three hundred and seven miles, stage to Greenville twenty-five miles, thence steamer as before. Time twenty-four hours. Fare same as above; and 3d. Steamer (International Sandford's Lines) to Bangor, two hundred and fifty miles, thence European Railway to Greenville, sixty-one miles, thence same as above. Time forty-nine hours. Fare $7.

The hotels and boarding houses are the Eveleth, and the Lake House, at Greenville; the Wilson House at the Outlet; the Mt. Kineo House, $2.50 per day, at the base of the mountain; the Carry Hotel, on the northeast carry, at the head of the lake; the Morris Farm, west branch: guides can be procured either at Greenville or Mount Kineo. Captain Samuel Cole at the Lake House, is ever ready to guide to the best fisheries. There are also F. H. Vaughan, Pete Ronco, Levi Ronco, A. B. Farrar, Ivory Littlefield, D. T. Saunders, and other well known guides. They furnish generally their services, a canoe and cooking utensils, for $3 per day. Boats can be procured of all sizes and styles, from birch canoes at twenty-five cents per day, to a steam pleasure yacht at $10 per day. There are good liveries at the hotels. The best months for sport, are August and September. The trip from Boston including traveling expenses and a stay of two weeks, can be made for about fifty dollars. Excursion tickets are sold from New York for $24, from Boston for $15. At Greenville, D. T. Saunders will furnish canoes, guides, and provisions for a canoe trip down the Allegash. The route is up the lake via steamer, across the carry to the Penobscot, down this river twenty miles to Chesuncook Lake, thence up the Umbazookskus River, across the Mud Pond Carry, thence via Mud Pond, Chamberlain Lake, the Locks, Eagle Lake, Pleasant Brook and Churchill Lake, into the Allegash. Moose, bear, caribou, wild ducks, partridges, trout, and other game are found on the route.

Somerset County—

Bingham is a good point from which to start into the Maine wilderness. Leave Boston by Eastern Railroad via Portland and Kennebec to Skowhegan, thence by stage fifteen miles to Solon, then eight miles to Bingham. Provide for roughing it. Ruffed grouse, ducks, trout, caribou, and other game will be found. Caribou about the forks of the Kennebec.

Washington County—

Grand Lake and Stream. Grand Lake Stream, is an outlet of the Grand Lake, one of the chain of Schoodic Lakes, famous for its landlocked salmon. In the lakes themselves, pike and lake trout abound, and brook trout in the streams that empty into them. Reached by steamboat from Portland and St. John, to Eastport, and thence rail to Princeton, or by European and North American Railroad to McAdam, St. Stephens and Princeton. A steamer leaves the Stream

every morning, connecting with the first train to Calais, and returning in the afternoon on the arrival of the train at Princeton. Canoes, hotels, and guides at Princeton. Board $1 to $1.50 per day. Guides' wages, white or Indians, $2 to $2.50 per day. Camping is generally preferred. David Dresser, at Princeton, will secure reliable guides and full information. Country hilly. The Dobsis club has a camp here.

Machias. Grouse, woodcock, bears and deer, salmon, black fish, brook trout. Reached by boat from Eastport or Rockland, or by yacht; also by wagon. Indians, canoes and provisions, can here be secured for a trip up the Upper Machias River, where there is good hunting for deer, bear, and other game.

Calais. Black meganders, ducks, ruffed grouse, woodcock, pickerel. Salmon and trout fishing in Grand Lake, on northern border of Washington County. Calais is on the St. Croix and Penobscot Railroad, or reached by steamer from Eastport, or by stage from Bucksport, there connecting with Boston steamers.

Dennysville. There is excellent trouting, with good woodcock shooting in the Denny's River, sixteen miles from Eastport. Reached by boat or wagon.

Vanceborough. Trout fishing in the St. Croix River. The route is via the European and North American Railway.

Princeton. Bear, deer, ruffed grouse, ducks, geese, plover; brook and salmon trout. For route see Grand Lake. Hotels.

Grand Manan. The Island of Grand Manan is situated in the Bay of Fundy, about thirty miles southeast of Eastport, Maine. It is thirty miles long and about nine miles wide, and lies in nearly a north and south direction. There are two small villages on the island and habitations are scattered over its greater part.

There are several small streams on Grand Manan which contain trout. The south, west and north coasts of the island are rocky and abrupt.

The southern end of the island is a favorite breeding ground of the herring gulls, (*Larus argentatus*), and their eggs are sought and used as food. The Passamaquoddy and Micmac Indians live near South Head and hunt the porpoise and seal for their oil. The eastern coast is low compared with its other shores, and it is that side of the island that is mostly inhabited. It is covered principally with spruce and birch timber, and it has the peculiar mossy spruce swamps which are common to northern Maine. Several years ago deer were common on the island, but the Indians and whites combined, have nearly exterminated them. There are a few ruffed grouse, woodcock, thrushes, (hermit, olive backed and golden crowned), robins, swallows, (barn, white-bellied, and bank swallows), warblers, flycatchers, etc., etc., that are found on the island, also the hare, grey rabbit and red squirrel. To the southeast, and east of Grand Manan are many beautiful islands which are full of interest to the naturalist. They are as follows: Two Islands, Three Islands, White Head, Eastern and Western Green Islands, Sheep, Pumpkin, Low Duck, Little Duck, Big Duck, Long, Ross, Cheney's Head, and Nantucket Islands. To the southeast are the Black Ox, Seal, Eastern, Western and Yellow Merle ledges, which are favorite breeding grounds of the seals. There is also one small island called the White Horse, which is a general "headquarters" and breeding ground of the Leach's Petrels. They burrow into the rich loam and deposit one egg in each hole. When caught in the hand they disgorge a brownish oil which is not very sweet scented. The eider duck and black guillemot breed on the rocky shores of the numerous islands, and an occasional pair of arctic puffins, (parrot bill murre,) are found breeding in the same localities. The razor-billed auk breeds in considerable numbers on the Yellow Merle ledges, and twelve years ago it was common to nearly all the islands of the Bay of Fundy. The island of Grand Manan is a good collecting ground for the naturalist at any season. In the autumn the ornithologist can collect the following birds in the Bay of Fundy:—Loons, red-throated diver, foolish guillemot, little auk, eider duck, pomarine skua, (gull chaser), herring gull, Wilson's tern, black guillemot, puffin, great black-backed gull, purple sandpipers, red phalarope, etc. etc.

Those who enjoy fishing can gaff lobsters, spear flounders, catch cod, hake, pollock, and an occasional halibut. Grand Manan can be reached from Boston, by rail, by the Boston and Maine Railroad, to Milltown, Me., and from there by boat to Eastport, thence by some fisherman's boat or the British mail packet to Grand Manan. The boats of the International Steamship Company ply between Boston, Portland and Eastport, and any person can go by boat the entire distance from New York, if they wish to, by connecting with the Boston steamers for St. John.

The house of Simeon F. Cheney, Nantucket Island, affords best of accommodations, boats, etc.

MARYLAND.

Maryland has an area of 11,124 square miles, excluding the waters and islands of Chesapeake Bay. The State is divided by the Chesapeake into two divisions, the Eastern Shore or that portion lying between the Chesapeake and Delaware Bays and the Atlantic, and the Western Shore, or that part between the Chesapeake Bay and Susquehanna River, and the Potomac. The Eastern Shore is level and in some places swampy, the Western Shore is in the north-western part, decidedly mountainous, the mountains growing less towards the south to the Great Falls of the Potomac, where the foothills are merged in the plain which makes up the lower portion of the State. Maryland has an extensive sea and bay coast, the latter indented by many bays, all of which are famous grounds for gunners. The game comprises a great variety of wild fowl. The waters afford excellent fishing, and railroad and extensive water communications of the State render these resorts easy of access.

Alleghany County—

Cumberland. Deer are found on the neighboring hills. The game birds are the wild turkey, pheasant, partridge, woodcock, jack snipe, and several varieties of the duck family. Cumberland is on the Baltimore and Ohio, the Cumberland and Piedmont, and the Pittsburgh, Washington and Baltimore Railroads. The Queen City Hotel is well kept; the St. Nicholas is the resort for sportsmen.

Baltimore County—

Baltimore. Miller's Island is a great resort for ducks. The best shooting spots are leased so that sportsmen have but moderately fair shooting. Reached by boat from Baltimore.

Cecil County—

At Turkey Point on the Eastern Shore, near the mouth of the Susquehanna, there are two points about one hundred yards apart and excellent ground to reach before the birds come. The game includes red heads, black ducks, and canvas-backs. Reached from Perrymansville.

Charles County—

In this county are some fine partridge and wild turkey shooting grounds.

Dorchester County—

East New Market. Rabbits, opossums, squirrels, red and grey foxes, geese, ducks, canvas-backs, quail, woodcock, snipe, water-rail; shad, rock pickerel, perch, herring. Reached via the Delaware and Dorchester Railroad. Hotel accommodations at Bramble's house, where horses and dogs will be cared for. The country is very level.

Cambridge. Snipe shooting in the vicinity. Reached via the Dorchester and Delaware Railroad.

Garrett County—

Deer Park. Bear, deer, foxes, rabbits, turkeys, ducks, snipe, partridges, ruffed grouse, woodcock, quail, and wild pigeons are found in all the surrounding country in such numbers as to make Deer Park a noted resort for sportsmen.

There are no fish except trout in the Blackwater at this place, and they are, as a rule, small, but are very strong and fight well. There are immense numbers of them. Near the Falls the fish are much larger.

The fare from New York to Deer Park is about fifteen dollars; it is the same

from New York to Wheeling, W. Va., so if ticket be bought to the latter place it can be disposed of at Deer Park or Oakland for a couple of dollars.

All trains of the Baltimore and Ohio Railway stop here in the summer. Most of the sportsmen who have been over this route to the Blackwater have started from Oakland, but the "Glades Hotel," (famous for its table and general excellency), has been destroyed by fire. The distance from Deer Park to Oakland is but six miles, and those who prefer to go on the old road can go from here.

There is a large hotel here owned and operated by the Baltimore and Ohio Railroad. It is a first-class house; the charges are from $3 to $3.50 per day.

The sportsman need not burden himself with much luggage; let him take his rod and gun, and if the latter be a breech loader, his cartridges also, for he cannot get them here. Other kinds of ammunition, Ditmar's wood powder and others, all kinds of shot, wads, etc., he can procure; also good lines and flies. A blanket will not be amiss. Coffee pots, frying-pan, etc., can also be had. It will not be necessary to take much food for camping expeditions, and a couple of hams, some bacon, coffee, sugar, etc., will be supplied at very reasonable rates. Good guides can be had for $1.50 to $1.75 per day; they will do the cooking, etc. Horses will cost somewhere in the neighborhood of $1.50. Trout are found in Deep Creek.

There is a tract of land called the "Dobbin Estate," where parties generally stay. It has upon it a good frame house, which is partially furnished and a lot of about twelve acres of pasture land for the horses. Nothing is charged for the use of house or lot and as it is but three miles from the North Fork, and on the banks of the South, and four miles from the famous "Falls of the Blackwater," it is the best plan to make this headquarters. The distance to this house from Deer Park is thirty-six miles, from Oakland thirty. See West Virginia.

Harford County—

Havre de Grace. Good duck shooting, including canvas-backs, broad-bills, black ducks. Reached via the Philadelphia, Wilmington and Baltimore Railroad, eighty-two miles from Philadelphia, twenty-six miles from Baltimore. Duckers, boats, decoys, etc., can be obtained for about $25 per day. Write to James Nixon.

The shooting at Havre de Grace is monopolized by fifteen or twenty parties, who shoot altogether for market.

The "Narrows," which begin about six miles south of Havre de Grace, sometimes afford good shooting from the shore, either side; but not until after a severe storm, do the ducks leave the flats and resort to these contracted waters, to afford sport enough to pay to leave New York, and then the stranger would find trouble in shooting, unless accompanied by some one known to the land owners.

Magnolia County—

There is excellent duck gunning at the railroad bridge crossing Gunpowder River.

Perrymansville is in the midst of many excellent wild-fowl shooting localities. Bush River, with Abbey Island at its mouth, Gunpowder River with Carroll's Island at its mouth, Maxwell's Point, three miles from the Gunpowder Bridge, the level shores near Harewood and Stemmer's Run, and many other well-known localities, are annually visited by sportsmen.

The shooting on Bush River is from point only. The shore owned by Mr. S. Sutton, P. O. address, Perrymansville, is a good one; the shooting is red-head principally. This shore is opposite the celebrated Leggoes' Point, the extension of Gunpowder Neck, and is one of the finest rough weather points on the Gunpowder. Carroll's Island, and in fact all the points on the Gunpowder, are rented for fabulous prices.

Kent County—

The White Perch Fishing at Betterton. Betterton is on the extreme upper end of Chesapeake Bay, within sight of the mouths of the Susquehanna, Elk, Northeast and Sassafras Rivers. It is about eighty miles by water from Philadelphia, and forty from Baltimore. It is reached by the Ericsson steamers which leave both cities at 4 P. M., requiring for the trip about eleven hours from the former, and four hours from the latter city. The fare from Philadelphia is $1.50, which includes berth. Meals are fifty cents extra. Philadelphians may leave the wharf on the upper side of Chestnut Street any day by the boats, which, though not large, furnish excellent accommodations, arrive at Betterton by sunrise, spend

a day on the fishing ground, and return by the evening boat, reaching home by six or seven o'clock next morning, being absent only an afternoon and a day.

The Delaware branch of the Philadelphia, Wilmington and Baltimore Railroad also runs to Still Pond, a station four miles from Betterton. The train leaves Philadelphia at 8 A. M., and makes the trip in four hours. Still Pond is also the Post Office, Betterton having only a few scattering dwellings, and no Post Office. Thomas Crew keeps the house (not a hotel and without a bar,) and can probably accommodate twenty guests, for whom he provides bountifully. His rate is $1.50 per day, and boats with captain and bait $3 per day. The favorite fishing ground is about two miles from the house, and the water there is about thirty to forty feet deep. The ebb current runs about two and a half miles an hour, and the flood current about two miles an hour, or with about one half the force of the current in the Delaware, hence a ten or twelve ounce dipsey is heavy enough for a bow or hand line, and two ounces for a rod line. A bass rod nine feet long, with multiplying reel, is the proper rod. The perch bite better at the turn of the tide—an hour before and after each, the low water and young flood being the best.

The tide tables of the Chesapeake are published in the *Nautical Almanac*. High water at Betterton, would be about half an hour earlier than at Turkey Point.

It is not amiss to take some bait along—worm, clam, or shrimp, or a good dip minnow net. If a hand line is used, glove fingers are necessary, else any but the toughest hand will give out before a day's fishing is over. Spesutia Island furnishes excellent duck shooting.

Montgomery County—

Barnesville. Black bass fishing in the Potomac, with excellent shooting. Reached via the Baltimore and Ohio Railroad.

The Great Falls of the Potomac are located fourteen miles above Washington, and seven miles from Rockville, on the Metropolitan branch of the Baltimore and Ohio Railroad. The route is from Washington to Georgetown, thence via canal; fare fifty cents, or via stage, seventy-five cents, to the fishing grounds. The Potomac has here three falls, aggregating a descent of eighty feet, within a distance of a few rods. Big bass, little bass, rock, and striped bass abound, and afford excellent sport. At the Cornelia Hotel, Messrs. Garrett and Mans, proprietors, board may be obtained, $2 per day.

Prince George County—

Upper Marlboro. Fine shooting on the swamp and marshes adjacent to the Patuxent River. Ortolans, reed birds, partridges, ducks, etc., and other game birds. Reached via the Baltimore and Potomac Railroad, or by drive from Washington. Skiffs and pushers are readily obtained, and the sport is always good. The grounds are within three miles of Marlboro.

Muirkirk Furnace. Snipe and quail shooting good in the vicinity. Reached via the Baltimore and Ohio Railroad.

Nottingham. On the marshes of the Patuxent River, excellent shooting is to be had (See Upper Marlboro). Mr. John Maccubbin, keeps the very comfortable and home-like inn in the village.

Ste. Mary's County—

Of the best known resorts on the Potomac may be mentioned Colton's, Leonardtown, Blackstone's Island, Piney Point, Marshall's, and Point Lookout, the latter a point of land at the mouth of the Potomac, with a splendid beach fronting on Chesapeake Bay. The attractions at all these places are boating, fishing, bathing, crabbing, and a fare composed almost exclusively of fish and oysters. Save at Piney Point, the terms are very moderate—$2 per day, $10 per week, and $30 to $35 per month.

Leonardtown. Duck shooting and good fishing. Reached by boat on the Potomac River. Hotel $2 per day, $10 per week, $30 per month.

Point Lookout. Fair fishing may be found here, including sheepshead. Reached via steamer on the Potomac, one hundred and thirteen miles from Washington. Board same as at Leonardtown.

Marshall's, two miles below Piney Point, is a favorite summer resort for pleasure seekers. The fishing includes sheepshead, white perch, rock, taylor, spot and croakers. The shooting is for partridge, duck and goose. Marshall's is one hundred miles from Washington, reached via Potomac steamers, and has

a good boarding house, with boats and other conveniences. Charges, $30 per month for a longer time than one month, or $35 for single month.

Piney Point. For the fishing and hunting and the route see Marshall's. The St. George's Hotel is comfortable and well kept, with moderate prices.

Chaptico. Good fishing in Britain's and Chapeto Bays. Take stage from Washington to Leonardtown.

Somerset County—

Princess Anne. Quail, snipe, woodcock and wild fowl. Reached via Delaware Railroad. Good board can be found among the farmers for $5 per week.

Washington County—

Williamsport. Black bass fishing furnishes fine sport. Williamsport is the terminus of the Western Maryland Railroad, and can be reached from New York by rail via Philadelphia, in about eleven hours, either by way of Harrisburg, Pa., or Baltimore. Hotel charges, $1.25 per day. A boat and boatman costs $1.50 per day.

Hagerstown. Turkeys, pheasants, quail, and woodcock. Reached via Cumberland Valley Railroad.

Wicomico County—

Tyaskin District, near Salisbury, is a favorite resort for wood duck and quail.

Worcester County—

Berlin. Ducks and geese, plover, snipe, quail, woodcock, rabbits; blue fish, striped bass, weak fish and perch. Reached by rail from Wilmington to Herrington Station and thence by either of two railroads via Georgetown or Salisbury. Hotel accommodations. A sneak boat or skiff, and several dozen decoys for geese, ducks, and snipe, are indispensable.

Ocean City. Ducks and geese, plover, snipe, quail, woodcock, rabbits; blue fish, striped bass, weak fish and perch. Favorite points of departure for the field are Canterbury, Herrington, Farmington, Greenwood, Seaford, Georgetown, Salisbury, Pittsville, and Berlin. There are good hotels, and Captain Ayres keeps a hostelry open all winter to accommodate sportsmen. As a rule, the farms are all posted, as a protection against market gunners, but gentlemen sportsmen can almost invariably obtain permission to shoot over private territory. It is better, in all cases, to obtain letters of introduction to land owners.

Snow Hill. Good snipe shooting on the marshes. Rabbits, squirrels, partridges in the vicinity. Reached via the Wicomico and Pocomoke Railroad.

Chincoteague Island. For game, route, etc., see Accomack County, Virginia.

MASSACHUSETTS.

Massachusetts comprises an area of 7800 square miles, with a population of 1,457,351. With the exception of the eastern and south-eastern sections, the surface of the State may be described as broken and rugged. Several inconsiderable mountain ranges are found in the State, the Hoosic, Holyoke and other ranges. The valleys, especially that of the Connecticut, are noted for their beauty of scenery and fertility of soil. Upon the coast are many islands, bays and sounds, all of which furnish excellent fishing and bay bird and wild fowl shooting. The railroad system of Massachusetts is very complete, this State containing, in proportion to her size, more miles of road than any other State in the Union. Hotel accommodations at all the shooting resorts are generally good, or

where these do not exist the sportsman will readily obtain accommodations at the farm houses.

Barnstable County—

There are a great many deer in this county, and several fine trout streams, as readily accessible from the town of Sandwich, as any other place. There are also plenty of quail. Take Old Colony Railroad to Sandwich. Good accommodations at the Central House.

Wood's Hole. On Buzzard's Bay there is excellent shooting for ducks, plover, and other varieties of water fowl. Professor Vinal N. Edwards, of Wood's Hole, has collected here the following fish, consisting of seventy five different varieties. Small spotted skate, peaked nose skate, sand shark, blue shark, leopard shark, mackerel shark, thrasher shark, hammer head shark, sleeper shark, (never before found in these waters;) horned dog fish, no-horned dog fish, common mackerel, spotted mackerel, tallow mackerel, mackerel scare, white mackerel, (not before found here;) sea herring, English herring, brown sea robin, large red sea robin, long finned sea robin, flying fish, tautog, scup, sea bass, menhaden, shad, hickory shad, common butter fish, square headed butter fish, (or silver fish;) common eel, lamprey eel, striped bass, squeteague, squid, king fish, tom cod, sea perch, sculpin, common large flounder, four spotted flounder, small mouth flat fish, large mouth flat fish, (very rare;) talbot, pollock, smelt, toad fish, swell fish, blue fish, haddock, hake, sturgeon, goose fish, boneta, sucker, cramp fish, red sculpin, (or pork in barrel;) large black stingray, bill fish, (seven feet long;) pilot fish, rudder fish, horned swell fish, or (egg fish;) puffin pig, file fish, moon fish, pompano, cero, Spanish mackerel, cunner, leather jacket, (never before caught in these waters;) codfish, whiting, (or frost fish;) mullet, ling, and three others.

The route from Boston is via the Old Colony Railroad; from New York, via the New Bedford steamers, which leave Pier 39, North River, every evening. Good hotel accommodations will be found.

Brewster is in the vicinity of good smelt fishing. Reached via Old Colony Railroad.

At the elbow of Cape Cod, and inside the sheltering range of sand cliffs which forms the lower extremity of Nanset Beach, is a wide expanse of shoals known to the hardy fishermen and mariners of the vicinity as "The Common Flats." These shoals, when bared by the falling tide, disclose miles upon miles of mud flats covered with the marine mud commonly known as eel-grass, the favorite food of several varieties of wild fowl, but more especially of the brant. Landward from these mud flats, and also protected from the encroachments of Old Ocean by Nanset Beach, stretches an extensive series of sand flats. This part of the "Cape" was in olden time a favorite hunting resort, and still affords good sport.

Monument. Excellent fishing in Buzzard's Bay. Reached via the Old Colony Railroad. The Stearns House offers comfortable accommodations.

Chatham. Dough birds, yellow legs, plover, brant, and other varieties of birds. Reached via Old Colony Railroad.

Cohasset Narrows. Blue fish, squeteague. Good catches of striped bass are made off the railroad bridge. Sportsmen will find good accommodations, with boats, bait, etc., at A. and H. Hatnaway's. Route as above.

West Barnstable. Fine deer hunting in the neighboring woods. Route as above.

Marshpee. The Marshpee River is a good trout stream. There is also excellent snipe shooting on the marshes. Reached via Old Colony Railroad.

Queshnet. Snipe shooting is good in the vicinity.

Cotuit Port reached by stage, seven miles from West Barnstable, which is on the Old Colony Road, is a famous place for shooting. The village is on the south shore of the cape, and on the neighboring highlands are many fresh ponds among the pine forests. Here the sportsman will find a variety of fresh and salt water fishing, and excellent wild fowl shooting. The Santuit House is a favorite summer hotel.

Hyannis, reached by a branch of the Old Colony Railroad, affords good shooting.

Sandwich. The streams in the vicinity are good trouting streams, but much fished; deer in the adjacent forests. Reached via the Old Colony Railroad.

Abington. White hares. Reached as above.

Waquoit. Good trout fishing may be found near the town.

Berkshire County—

Pittsfield. The Housatonic River is a fine locality for trapping muskrats and otters. Reached via the Boston and Albany Railroad. Silver, Sylvan and other lakes in the neighborhood, are full of pickerel.

Great Barrington. Woodcock and ruffed grouse shooting in the vicinity, with fishing in the streams and numerous lakes in the surrounding country. Reached by rail or highway from Stockbridge. There are comfortable hotels here, and many pleasant drives all about this region.

Ashley Falls are three miles from the Twin Lakes. (See Canaan, Conn.) Reached via Harlem Railroad, four hours ride from New York. Cooper's "Locust Hill Farm" furnishes every accommodation to sportsmen.

Otis. Woodcock and grouse shooting. Reached via stage or hired conveyance from some station on the Boston and Albany Railroad.

Lee. Laurel Lake, two miles north, the Yokum Ponds, a few miles southeast, Lake Mahkeenac, four miles distant, and other waters in the neighborhood, are favorite picnic and fishing resorts. Lee is a pleasant village, much visited in summer. The route is via the Housatonic Railroad.

Bristol County—

New Bedford. Quail, partridge, grouse, woodcock, snipe, plover, bay birds, marsh birds, ducks, blue fish, bass, scup, tautog, bill fish, sword fish, trout in the neighboring fresh water streams. New Bedford is headquarters for sportsmen who wish to enjoy the splendid fishing and shooting in Buzzard's Bay. Captain J. L. Sisson, whose address is at 22 South Water Street, owns a yacht, live decoys for ducks, and wooden ones for bay birds and sheldrakes, and will serve parties of sportsmen faithfully. Black ducks are particularly abundant in the fall months. De Costa's Island affords excellent stands for shooting. It is about a mile from the main land. The easiest and cheapest way to reach New Bedford from New York is by steamer that leaves New York in the afternoon and arrives early the following morning. Fare $3. From Boston go via Old Colony and New Bedford Railroads.

Nonquit. Fishing directly from the rocks for tautog, scup and blue fish. There is a good hotel $2 to $3 per day, with boats, boatmen, etc., to be obtained at Nonquit or New Bedford, at prices ranging from 25 cts. an hour to $6 per day. A steamer makes three trips a day to and from New Bedford, seven miles distant, making a delightful sail of one hour down Buzzard's Bay.

The Elizabeth Islands—

Cuttyhunk, Nashawena, Pasque Island and *Naushon.* Striped bass, blue fish, squeteague, sword fish, excellent bay bird shooting. There is a private clubhouse on each island. Naushon is stocked with English and Scotch game birds and animals, American deer, and prairie fowl. These islands are accessible by yacht from New Bedford or Martha's Vineyard.

Fall River. Grouse, quail, woodcock, and broadbills in the Westport ponds, white and yellow perch and pickerel in Lake Watuppa. Reached via rail from Boston, and steamer from New York City.

Dukes County—

Martha's Vineyard. A famous place for summer excursionists and pleasure seekers. Good fishing and shooting are found at various points on the Island, some of the best known being in the vicinity of Gay Head. At Gay Head, if the wind is southeasterly, so that it blows from Cuttyhunk, the fishing is spoiled by washing off the white clay bottom; but there are one or two points along shore known to old fishermen only, where good sport can be had when the wind is from the northward. The lighthouse keeper at Gay Head is always glad to entertain anglers. There are several fine hotels and boarding houses open in summer. Boats, boatmen, etc., are always to be had. Reached from Boston, via Old Colony Railroad to Wood's Hole, thence steamer. From New York take steamer to Fall River, thence rail to New Bedford, thence via steamboat.

No Man's Land. Striped bass, blue fish, and other fishing, with good shooting for wild fowl and several varieties of game. Address Captain J. L. Sisson, 22 South Water Street, New Bedford, Mass. He has every facility for fishing and shooting at No Man's Land. The route is by pleasure yacht from New Bedford or Martha's Vineyard.

Essex County—

Marblehead. Smelts, cod, cunners, and other varieties of fish, with snipe,

plover, duck and other shooting. Reached by a branch of the Eastern Railroad from Salem.

Gloucester. Many varieties of fish, including smelts. The shooting in the vicinity is for bay birds and water fowl. Reached via the Eastern Railroad. There are several summer hotels besides those in the city. There are a good many ruffed grouse and woodcock in some parts of Danvers, Middleneld, and Topsville.

Cape Ann. Cooting at Annisquam and other points on the Cape. Take the Eastern Railroad to Rockport, thence stage or hired conveyance.

Andover has some fishing in the neighboring lakes and streams.

North Andover. Black bass in Lake Cochichewick. Reached via the Boston and Maine Railroad.

Swampscott. Smelts. Reached via the Eastern Railroad, thirteen miles from Boston.

Lynnfield. Lynnfield Lake, a delightful sheet of water, within ten miles of Boston, has been stocked with Oswego bass, and now affords capital sport. Take the Danvers and Newburyport branch of the Boston and Maine Railroad. Good board can be had in private families in the village, and boats, etc., can be easily obtained.

Beverly. Peeps and ring necks. Reached via the Eastern Railroad.

Ipswich is a good shooting centre. Snipe, ducks, etc. Reached via the Eastern Railroad.

Nahant, the favorite sea-side resort of Bostonians, affords good shooting and fishing. Ducks, brant, curlew, coots, etc., with a variety of fishing, offer abundant employment for rod and gun. Nahant is reached by steamer from India wharf, Boston, or via Eastern Railroad to Lynn, thence omnibus, or by Narrow Gauge Railroad, direct.

Lynn. Ducks and other wild fowl in the harbor. Excellent fishing. Rail from Boston.

Wenham. Trout are caught in the lake. Wenham is on the Eastern Railroad, twenty-three miles from Boston.

Salem. All about Salem and the neighboring harbors, good gunning may be enjoyed. All kinds of wild fowl are found here, ducks of many varieties, geese, coots, plover, snipe, quail, partridges, etc., and rabbits on the hills. The fishing is for the usual varieties found on the coast. There are many boats always to be had, and guides, boatmen, etc., at reasonable rates.

Franklin County—

Shutesbury. Excellent trouting in the streams in this vicinity. Reached by stage from Amherst.

Hampden County—

Springfield. Fly fishing for shad in the Connecticut; trouting in the vicinity, and woodcock and partridge shooting. Reached via the Boston and Albany, and other railroads.

Hampshire County—

Florence. Grey and red squirrels, foxes, coons, rabbits, pigeons, partridges, etc. Reached via the New Haven and Northampton Railroad, or by horse-cars from Northampton.

Amherst. Fox, rabbit and squirrel shooting. There are several good trout streams in the vicinity. On the New London Northern Railroad.

Middlesex County—

Good black bass fishing near Lincoln. Take Fitchburg Railroad to Weston.

Framingham. Some quail, and in the meadows a few snipe. Boston and Albany Railroad.

Lexington. Ruffed grouse, woodcock and quail shooting in the neighboring country. Reached by the Lexington Branch Railroad, from the Boston and Lowell depot, Boston. The Monument House furnishes comfortable accommodation.

Shirley. Foxes. Reached via Fitchburg Railroad.

Natick. Good trout streams in the vicinity. Landlocked salmon have been planted in Dry Pond.

Nantucket County—

Nantucket. Scup, blue fish, and, in the ponds perch; black ducks, plovers,

curlew, and almost every variety of shore bird on the commons, and in the Hammock Pond. Reached via Old Colony Railroad to Wood's Hole, thence by steamer.

Norfolk County—

Cohasset. Ducks, black and mallard, teal, brant, coots, plover, curlew, tattlers, grass birds, quail, partridges, wild pigeons. The fishing is for smelts, blue fish, etc. Reached via the Old Colony Railroad, twenty-one miles from Boston. Kimball's Hotel is patronized by sportsmen.

At *North Cohasset*, smelts are caught inside of the Black Rock, and also at *Milton.* Route as above.

Randolph. Ducks, geese and other wild fowl afford fine shooting. Reached via the Old Colony Railroad.

Weymouth. Smelts. Route; via Old Colony and South Shore Railroads.

Quincy. Squantum Point, connected with Boston in summer by steamers, affords good fishing, and is famous for its chowders. Reached via the Old Colony Railroad.

Quincy Point. Smelts here afford good sport.

Plymouth County—

Marshfield. Yellow legs, snipe, grass birds, peeps and ring necks. Reached via Old Colony Railroad.

Clark's Island, is situated two miles from the main land, opposite the towns of Marshfield, Duxbury, and Plymouth, once a famous gunning ground, and still affording good sport for wild fowl of all kinds. Reached by boats from the towns mentioned, which are easily accessible by rail.

Cohasset is a favorite resort for gunners. Ducks, geese, snipe, rabbits, etc. Reached by rail from Boston.

Hingham and Hull. Smelts, and other varieties of fish. The shooting is good for bay birds. Reached via steamers from Boston, which leave Liverpool wharf twice daily in summer.

Plymouth. Snipe and quail shooting. Plymouth Woods is the only locality in Massachusetts where deer are now found; the forests are dotted with beautiful lakes, from many of which flow sparkling brooks filled with speckled trout. The lakes contain pickerel, perch, black bass, etc. Reached by Old Colony Railroad from Boston or New York.

Scituate furnishes good wild fowl shooting. Reached as above.

Wareham. Fine squeteague (weak fish) fishing in season. Go via the Old Colony Railroad, and stop at the Kendrick House, P. S. Hackett, proprietor, and previously write to him in order to have a boat and boatman engaged to take you down the river into Buzzard's Bay to the fishing grounds. A party who are fortunate in securing the services of that renowned and jovial colored gentleman, Dempsey (Hill), who carries parties from the Kendrick House, and his fast and well found yacht, "Dempsey's Dream," will be sure of a pleasant time, even if they experience "fisherman's luck." Dempsey is *au fait* in everything pertaining to capturing fishes in these waters.

Suffolk County—

Boston. Grey squirrels, partridges, quail, and ducks are found in the vicinity. At Spectacle, Thompson's Island, and other points in the harbor, good fishing is to be had. Boston has many seaside resorts within a short distance by rail and steamer from the city, at all of which fishing and shooting is to be had.

Worcester County—

Charlton. Quail, ruffed grouse, woodcock, etc. The route is via the Boston and Albany Railroad.

Ashburnham. Wild pigeons are found on the heights at this place. Reached via the Fitchburg Railroad, ten miles from Fitchburg.

Lancaster. Plover shooting. Reached via the Worcester and Nashua Railroad.

MICHIGAN.

Area 56,451 square miles, population 1,184,059. The State is divided into two peninsulas, the northern peninsula which comprises one-third of the State is for the most part rugged and mountainous. The Porcupine Range forms the watershed, from which on either side an elevated table land slopes to the lakes. The country is rocky, much of it sterile, near the lake shore often sandy plains, and the remainder coverd by dense forests. The lower peninsula, on the contrary, is level, with formerly great stretches of marsh lands which have since been reclaimed and cultivated. This region is now the garden of the north-west. The surface of both peninsulas is diversified by great numbers of lakes, of all sizes, and are in the proper season the resort of great numbers of wild fowl of various species. The forests of the northern section of the State are the abode of much large game. The lakes afford good fishing, and the streams of the southern peninsula are famous for their trout and grayling. All these shooting and fishing grounds are readily reached by the railroads of the State, on all of which the sportsman will secure every attention, and from whose officers and employees all needed information may be obtained.

Alpena County—

Alpena City. Good duck shooting on Thunder Bay. The route is via boat from Detroit, or via the Michigan Central Railroad to Standish, thence stage.

Baraga County—

L'Ance. On Fall River and L'Ance Bay, is found fine brook and salmon trout, and white fish fishing. Reached via the Marquette, Houghton and Ontonagon Railroad. Good hotel accommodations may be found.

Bay County—

Bay City. Good duck shooting all along Saginaw Bay. Reached via the Michigan Central, the Flint and Pere Marquette, or the Saginaw Valley and St. Louis Railroad, or via boat from Detroit.

Charlevoix County—

Boyne. The Boyne River and the waters in the vicinity afford excellent trout fishing. Reached via the Grand Rapids and Indiana Railroad. The Boyne is navigable for small boats, a short distance from its mouth, but its rapid current precludes their frequent use. Two and one-half miles from Boyne Falls, a small body of water called Deer Lake affords fine fishing, and five miles west of the station, the Boyne empties into Pine Lake, an admirable fishing ground.

Daily stages run between Boyne Falls and the head of Pine Lake, there connecting with a small steamer, making daily trips to Charlevoix and intermediate points. Charlevoix can also be reached by public highways passing around the lake, or by steamer sailing from Traverse City. Horton Creek, a very fine trout stream, flows into Pine Lake three miles from its head. Passing ten miles westward on the south highway, or taking steamer from the head of Pine Lake, the embouchure of the south arm of Pine Lake is reached. It is a narrow strip of water nine miles long, varying from half a mile to a mile in width. Like Pine Lake, it is well supplied with pike, pickerel and bass, thus affording very choice fishing with the spoon. By continuing up the arm in boats, or by following the highway one and one-half miles west, and then going south, the Jordan, which flows into the south arm, is reached. It is very swift, and grows swifter as the stream is ascended. It is navigable for small boats, and flows in a northwesterly

direction from its source. It is regarded as a very fine trout stream, and abounds in grayling. There is excellent wading. At the mouth of the Jordan there is a good house—Mr. Wiekel's. Also, at J. B. Webster's, five miles from the mouth of the Jordan, and half a mile back from the stream, good quarters may be secured.

Chippewa County—

Sault de St. Marie. Trouting in the neighboring streams, flowing into Lake Superior, white fish in the rapids. The route is via the Lake Superior line of steamers, which start from Buffalo, and go via Erie, Cleveland, Detroit, etc.; or via the Collingwood line of steamers, which connect at Collingwood with the Northern Railway of Canada; or via the Chicago and Milwaukee line of steamers. All the supplies the fisherman requires can be had on the Canadian or American side of the falls of St. Marie at the lowest tariff, including seaworthy boats, and also seamen to manage them—men who are nonpareil as camp servants, and learned in the geography of the coast.

Delta County—

Escanaba. This is one of the pleasantest summer resorts in the west. It is situated at the head of Little Bay Des Noques, at the north end of Green Bay. The water of the bay, clear as crysta', washes the streets of the city on two sides, while the Escanaba River forms the third, and the aromatic "piney woods" close well down on the other side. Good hotels offer quiet and comfortable quarters for tourists who may wish to spend days or weeks here fishing, boating or bathing. White Fish Bay in this vicinity offers rare sport for fishermen, and every little stream (and they are numerous) is almost alive with brook trout. From Escahaba excursions are fitted out in various directions. Those not caring for fishing, can find bear and deer in abundance, with ducks, geese, brants, partridges and smaller feathered game. This is now a favorite summer resort for the people of Chicago. The hotel accommodations are unsurpassed.

The country beyond Escanaba contains many fine brook trout streams, and deer, bear and other game, and fur-bearing animals. The sportsman, fisherman or trapper, will find ample employment and sport here. There is a good winter hunting spot, eight to ten miles north of Day's River, and on Red Division (twelve miles north of Escanaba) on the Smith River. On Bay de Noquet, the deer congregate in a section of heavy timber, and winter there. Splendid hunting may be had in the months of October, November and December. Guides may be had at about two dollars per day. Guides make their headquarters here, and this, without doubt, is the best point to fit out with everything necessary for the trip, with exception of arms and accoutrements. The deer commence crossing at Little Lake, about August 5th; Helena Switch, about August 8th to 10th; McFarland's Hill (half-way between Helena and Centreville), 10th to 12th; Centreville, about 15th to 18th, and so on. Escanaba is reached via the Chicago and Northwestern Railroad.

Emmett County—

Petoskey, the northern terminus of the main line of the Grand Rapids and Indiana Railroad, is situated on the south side of Little Traverse Bay, at the foot of high bluffs. To the north, just across the bay, is Little Traverse village, the headquarters of Indians who dwell in the neighborhood. A steam yacht runs between Petoskey and Little Traverse, fare twenty-five cents. In the Bear River, emptying into the bay, grayling and brook trout are caught. In Round Lake, four miles, and in Crooked Lake, seven miles northeast, the usual varieties of fish are found. From Petoskey, upon arrival of the train from Cincinnati in the morning, the swift and beautifully appointed steamer, Music, leaves for Mackinaw Island. An admirable breakfast is served on board the steamer, and returning in the evening, an equally good supper.

Genesee County—

Flint. Bear, deer, wild turkey, quail, ruffed grouse and wild fowl shooting. Reached via the Flint and Pere Marquette Railroad. Gentlemen sportsmen will find accommodations at most of the farmhouses in the vicinity.

Grand Traverse County—

Traverse City. Mascalonge, lake trout, bass, pike and pickerel are very abundant. These varieties, except lake trout, are found also in Cedar Lake three miles, Bass Lake eight miles, Betsie Lake twelve miles, Long Lake six

miles, and Traverse Lake ten miles from Traverse City, and are especially fine. Perhaps the best fishing with the spoon, outside the bay, is found in Carp Lake eight miles northwest of Traverse City, reached by highway.

Brook trout are very abundant in this vicinity. The water of all streams in this locality, is very cold and extremely pure and clear. The Boardman, its branches, and all the streams in the neighborhood of Traverse City, contain brook trout. No stream is navigable except the Boardman, and that only for small boats. Current swift, but not too deep for wading; excellent sandy bottom.

There are a few grayling in the Boardman, known by the local name of "Garpin."

Besides the Boardman River, the various trout streams and ponds are Mitchell's Pond, distant three and one-half miles from Traverse City; Hoxie's, seven miles; Whitewater, nine miles; Scofield, twelve miles; Hannah's Mill Pond and Creek, one half mile; Greelick, three miles; Bitner's Pond and Creek, seven miles; also the Racket, Joyton and Pine Rivers, as well as many smaller streams emptying into the Boardman.

Traverse City is the terminus of the Traverse City division of the Grand Rapids and Indiana Railroad. The hotel accommodations are good. Prices, $2 per day; $10 to $14 per week.

Parties desiring can find good camping grounds at the "Forks" of the river, State Road Bridge, Railroad Crossing near Mayfield town line, and Smith's Farm, all on the Boardman River. Stage fare to Hoxie's, $1; to Whitewater, $1.25; to Mitchell's, 50 cents. All other points reached by private conveyance.

Guides charge $2 per day; with boats, $2.50 to $4 per day; with team, $4 to $6 per day; boats only, 50 cents to $2 per day.

Fife Lake. In the lake, on which this village is situated, are found bass, pike and pickerel. In the Manistee River, five miles southeast, are grayling, and in the Boardman River, six miles north, is excellent fishing for grayling and brook trout. Take the Grand Rapids and Indiana Railroad. Hotel charges are from $1.50 to $2 per day. Teams, with driver, can be procured for $5 per day. Boats for fishing on the lake can be had for the asking, but boats for the Manistee will have to be taken there by team. Boat-fishing in the Boardman at this point is difficult, owing to brush and undergrowth along its banks, but wading is good.

Houghton County—

Hancock and Houghton are on the Portage Lake. In the vicinity of each are fine trout streams. Reached via the Marquette, Houghton and Ontonagon Railroad, or via steamer.

Ingham County—

Lansing, on the Mississippi River, is in the vicinity of excellent shooting for brant, geese, ducks, mallard, a few canvas-backs, quail and pheasants.

Isabella County—

Crawford. Black and rock bass, and grayling; deer, wild turkeys and bears. On the Mackinaw Division of the Michigan Central Railroad. Camp, or hotel accommodations.

Jackson County—

Jackson. In the vicinity of Silver Lake, six miles from the town, are ducks, plover, pinnated grouse, ruffed grouse, woodcock, quail and wild turkey. Jackson is easily accessible by the Lake Shore, Michigan Central, and other railroads. Hotels $2.50 per day, private house $4 per week; boats 75 cents per day; teams $4 per day.

Hanover. Fine quail and pinnated grouse shooting on the many dry marshes in the vicinity. Reached via the Fort Wayne, Jackson and Saginaw Railroad.

Kalkaska County—

Kalkaska is on the North Boardman River, which is full of trout. Three miles north is the Rapid River, another good trout stream, and in the vicinity are many lakes well stocked with fish. The route is via the Grand Rapids and Indiana Railroad. Good hotel accommodations can be found for $1.50 to $2 per day. Teams may be used, if visitors so desire, or, as the distances are short, excursions may be made on foot. A good plan is to arrange with the hotel-keeper for a conveyance, and perhaps a lunch, to be sent at a specified time to a spot previously agreed upon; the fisher working his way through the day to the rendezvous. Good wagon roads lead from the village to all fishing spots. Camping grounds

are numerous and fine. At this point the Boardman flows with a speed of four miles per hour, and is not navigable, but has a good bottom for wading. The Rapid River flows with a current of eight miles per hour, and forms many deep pools. From Kalkaska the sportsman can go via the railroad to the head-waters of the Intermediate, Grass, Jordan, Deer and Boyne Rivers, all most excellent trout streams. Owing to the unbroken character of the forest in this vicinity, no stranger should venture in without a guide who is thoroughly acquainted with the grounds. Parties must come prepared to camp. In the hunting season, large numbers of deer are found in these woods; there are many squirrels in the forest lining the banks of the Jordan and adjacent streams, and their flesh forms most excellent bait in the absence of worms.

Kalamazoo County—

Kalamazoo and Texas. Kalamazoo County has numerous small lakes. There are thirty-three within ten miles from Kalamazoo, all well stocked with black bass. In the town of Texas there are several lakes in a cluster, the principal of which are called Crooked, Eagle, Pine Island, and Pretty.

Lake County—

Baldwin. Bears, deer in abundance; black bass, grayling, perch, pickerel, and other varieties in the adjacent lakes. Reached via the Flint and Pere Marquette Railroad. Hotel and private board, $1 per day; guides $1.50; teams $2.50. Country level and well timbered, with excellent camping grounds.

Marquette County—

Ispheming. Black bears, deer, ruffed grouse; black bass, speckled trout, Mackinaw trout. Reached via the Marquette, Houghton and Ontonagon Railroad. Hotel $1.75 to $3 per day. The country is hilly, with excellent camping grounds on the borders of the lake.

Negaunee. Bears, deer, lynx, otter, beaver; brook and lake trout, bass, sturgeon, and white fish. There are several rivers and lakes in the vicinity, all affording fine sport, and accessible by rail or wagon. Reached via the Chicago and Northwestern Railroad. Boats with guides $1.50 to $2 per day. Good hotels.

Marquette is on the southern shore of Lake Superior, on the Bay of Marquette, which affords unequaled facilities for boating, and whose waters are filled with white fish and fine salmon trout, ranging from five to twenty-five pounds in weight. Numerous streams in the vicinity furnish excellent brook trout fishing. Dead, Chocolay, Little, Garlic, Salmon, Trout and Huron Rivers, are all filled with large trout. A tent is a necessary adjunct of all parties to these streams. Reached via steamer, or the Marquette, Houghton, and Ontonagon Railroad.

From Marquette, the sportsman can take the steamer for Sault St. Marie, for Isle Royal, St. Ignace Island, Fort William, or any point on the north shore of Lake Superior. The rivers *Nipigon* and *Michapacoton*, are the best known of the trout streams of the north shore. Guides to these streams can be easily hired at Marquette, and fishing parties fitted out with little expense or labor.

Presque Isle is an excellent fishing resort, and here there are fishing club houses. Reached via boat from Marquette.

The Michigammin River flows from Lake Michigammin to the Menominee River. From the lake to the mouth of the Michigammin River, in a direct line, may be not over fifty miles, but by the current it is estimated to be over one hundred miles through a wild, mountainous region, often contracted into narrow, deep canons, presenting a scenery wild and romantic beyond description. It has been navigated by several parties, and is said to afford most excellent trout fishing, deer and wild fowl shooting. The course of this stream is through an interminable forest. There are several easy carries, which are readily surmounted by the guides, who are familiar with the route, and who can be secured at $1.50 per day, either at the lake or at Marquette, on Lake Superior, where a complete fitting out can be effected on short notice. Up the Brule twenty-five miles, are fine trout. There are two routes, one by rail and one by steamboat. From Milwaukee, take rail via Marquette to Champion, at the head of the lake, where are birchen canoes for the trip down the river. From Marquette to the lake is about thirty-five miles. The railroad officials are very polite and attentive, and will give every facility to promote the sportsman's pleasure. The steamboat route is direct from Buffalo through the Straits of Mackinaw, and is probably the most convenient to the Eastern tourist, as he can have a fine sail through the whole length of Lake Erie, Detroit River, Lake St. Clair, Lake Huron, and across a

part of Lake Superior to Marquette, which is now the point of embarkation. There is no trouble in securing half breeds, who are perfectly reliable for guides, and who understand perfectly the proposed route.

Mason County—

Ludington. Deer, ducks, ruffed grouse; lake trout, grayling, pickerel. Reached via Flint and Pere Marquette Railroad. Hotels $1 to $2 per day; guides, $2 per day; boats with boatmen, $3 per day; teams $4 to $6 per day. Provide camping outfit. Country rolling.

Midland County—

Averill's Station. Six miles north is a fine shooting ground for deer, ruffed grouse and quail. On the Flint and Pere Marquette Railroad, one hundred and sixty-eight miles north of Detroit.

Coleman. Bears and deer. Route as above. Hotel and private board $1 per day, $4.50 per week; teams $3 per day. Camping out is necessary for good sport. Country generally level and heavily timbered.

Monroe County—

Monroe. Black bass, pike, pickerel, perch; woodcock, quail, partridges, ruffed grouse, wild turkeys, ducks, mallards, widgeons, canvas-backs, sprig-tails, teal, snipe, plover, reed birds. Monroe is three miles from Lake Erie, twenty-five miles from Toledo, reached via the Canada Southern, and Lake Shore and Michigan Southern, or the Flint and Pere Marquette Railroad. Go to Joseph Guyor's Island House, on Raisin River, where sportsmen will find the best of accommodations, and where boats, tackle and everything needful can be procured.

Oakland County—

Pontiac. Woodcock, ruffed grouse, pigeons; trout, pike and bass. Reached via the Detroit and Milwaukee Railroad.

Birmingham. Woodcock, partridges, quail, squirrels and rabbits.

Osceola County—

Hersey. Deer, ruffed grouse; trout and pickerel. Reached via Flint and Pere Marquette Railroad. Board $1.50 per day. Provide for camping out.

Reed City. Ruffed grouse; grayling in Hersey Creek. Route as above. Hotel $2 per day; teams $3.

Three miles from Reed City is Hersey Creek, which is well stocked with grayling. The route is as above, or via the Grand Rapids and Indiana Railroad.

Otsego County—

Otsego Lake. Bears, deer, wild turkeys; black bass, pickerel and grayling in Otsego Lake. The route is via the Michigan Central Railroad. Camping equipments should be provided.

Roscommon County—

Houghton Lake and Higgins Lake, the first fifteen miles long, and from two to six miles wide, and the second six miles by three, are reached by Jackson, Lansing and Saginaw Railroad, eighty miles from Bay City; thence wagon five miles. The lakes are full of white fish, and the vicinity abounds in deer, bears, ducks, and small game. Leave the railroad at Roscommon Station. There are a few log cabins on the lakes, built for the accommodation of visitors who come to hunt and fish.

St. Joseph County—

White Pigeon. Wild turkeys, quail, ruffed grouse, woodcock, in a lake three miles from town, black bass and pickerel. Reached via the Lake Shore and Michigan Southern Railroad.

Salinac County—

Lexington. Deer, bear, wild-cat and wild turkeys. Rail to Port Huron, thence via boat, thirty miles to Lexington, thence five miles inland. Board and dogs can be found among the farmers.

Schoolcraft County—

For sport in this county commence at a point about thirty miles above White Fish Point, the entrance to Lake Superior, which is fifty or sixty miles from Sault St. Marie. Gravel River has large trout, and a great many of them. A beauti

ful lake, one-half mile wide and two long, lies about four miles from Grand Marias River, and is filled with black bass and pickerel. Pickerel are very large here also—as high as twenty pounds or more. This lake is about one mile south of Lake Superior, and boats must be carried across an immense sand bluff to get to it. It is a great resort for deer all through the season, and more or less can be shot any night by torchlight by whoever will take the trouble. Leaving here, we pass the Grand Sauble, the Pictured Rocks, and come to Miners River. Here are many fine trout and deer. Next is Grand Island. A fine hotel here, and summer resort. Trout and deer are plenty. In Anna River, at the head of the bay, are many trout of three and four pounds in weight. They are also caught there as large off the dock in the bay. There are many small streams and lakes in the vicinity full of trout. Au-train Lake comes next, abounding in pickerel, with plenty of deer about. Next comes Laughing White Fish Point, and then the Chocoly River. In this river, which is three miles from Marquette, are taken trout weighing over five pounds. This river and its branches are full of trout, with deer and ducks on its borders and in its waters. Then comes Carp River, full of fish, and then Marquette.

Tuscola County—

This county and the adjoining counties of Huron and Salinac, in the northwestern part of the State, contain some elk, as well as deer, ruffed grouse, squirrels and other game. Reached by Lake steamer or rail from Bay City, Port Huron or Detroit.

Washtenaw County—

Ann Arbor. Ducks, plover, woodcock, ruffed grouse, squirrels, and other game are found within easy access from the city.

Wayne County—

Detroit. The St. Clair flats are favorite resorts for gunners, both from Canada and the United States. Ducks of nearly all varieties, woodcock, quail, partridges, turkeys, deer; and excellent black bass fishing. The Indians on the Canada side have leased their marsh shootings for ten years, while they retain for their own exclusive use the animals and the fish. Trespassers will be warned off, and if they persist, will be prosecuted. Any respectable person will find little difficulty in securing permission at reasonable times and on reasonable terms. Four hours from Detroit, via steamer. There are two club houses. Conner's Creek near Detroit is a good place for blue bill, poke, and red head duck shooting, snipe and plover.

Trenton is in the vicinity of excellent duck shooting. Reached via the Canada Southern, or the Lake Shore and Michigan Central Railroad.

Grosse Isle. Fine ducking is found here. Reached via the Canada Southern Railroad.

Wexford County—

Clam Lake. The lakes here afford very good fishing. Clam Lake is on the Grand Rapids and Indiana Railroad, ninety-seven miles from Grand Rapids. Boats varying in price, and accommodation and teams, at from $3 to $5 per day, can be obtained at any time.

Walton. The Manistee River is one of the finest grayling streams of Michigan. Walton is on the Grand Rapids and Indiana Road. Parties intending a long stay must come prepared to camp. Teams can be hired at from $3 to $5 per day, to transport camping equipage to the river banks. The river is navigable, and boats must be used, for it is a wide, strong stream. The current runs about four miles an hour, but in some places it is much swifter.

MINNESOTA.

Area 83,531; population 439,706. The State is without mountains. Three-fourths of the surface is rolling prairie, interspersed with groves, oak openings and innumerable lakes and small streams.

The remaining fourth, comprising the section where the Missouri and the Red River of the North have their sources, is hilly and densely wooded. Minnesota is remarkable for the great number of lakes, of all shapes and sizes, which every where dot her surface. It has been estimated that these lakes make up one-thirty-fifth of the whole area of the State. On all these waters are found great flights of wild fowl, while the prairies abound in pinnated grouse and other game, and the forests are full of deer, bears and elk. The means of communication are good; the sportsman may strike out from any of the railroad lines, with good assurance of success and will find either hotel accommodations, or courteous entertainment among the farmers.

Aitkin County—

Aitkin is twenty-eight miles east of Brainerd, on the Northern Pacific Railroad. A delightful trip is to launch your bark canoe on Mud River, following that crooked stream a mile, enter the Mississippi River, and thence down stream a hundred miles to Brainerd, getting fish, duck, grouse, and perhaps a shot at a deer or bear.

Becker County—

Detroit City, near the shores of Detroit Lake, a fine sheet of water, and on the borders of the "Park Region," is becoming a popular place of resort by those who admire beautiful scenery, and enjoy the sports of hunting and fishing. Reached as above.

Blue Earth County—

Eagle Lake is in the centre of the Big Woods. Excellent fishing and wild fowl shooting on the lake, and in the vicinity. Reached as above. Hotel accommodations will be found. There are many large lakes in the county, in all of which the sportsman will find fish and game.

Mankato. Fish and game abound in the vicinity, offering rare sport to the hunter and fisherman. Route as above.

Brown County—

Sleepy Eye. Geese, ducks, pinnated grouse, and other game abound in the vicinity; pike, pickerel, and other varieties of fish in the lakes. Reached via the Chicago and Northwestern Railroad. Hotel $1.50 per day. Country rolling prairie.

Carleton County—

Northern Pacific Junction, on the Northern Pacific and the Lake Superior and Mississippi Railroads, one hundred and thirty-one miles from St. Paul, and twenty four miles from Duluth. Island Lake, two bodies of water, are full of fish, bass, pike, perch, and pickerel, and where the lakes join at the south end, is a large field of wild rice, a splendid place to shoot ducks as they fly back and forth.

Moose Lake. Bears, deer, ruffed grouse; pike, pickerel, and bass. Reached via the Northern Pacific Railroad. The sportsman will find no accommodations here; should provide camping outfit. Indian guides, $2 to $3 per day, birch bark canoes can be bought for $5 to $10. The country is rolling and densely wooded, with many lakes in the vicinity.

Cass County—

Leech Lake is seventy-five miles north from Brainerd. Among the animals are deer in abundance, and occasionally a moose. Otter, mink, muskrat, bear, black and cinnamon; foxes of all kinds, wolverines, weasels and wild cats, are the principal fur-bearing animals, of which the muskrat is the most common. They are sometimes of enormous size, and will fight savagely when wounded or cornered. The swamp wolf and the prairie wolf are also very numerous.

Of the feathered tribe, there are wild ducks of every kind in abundance; it is not uncommon to shoot from fifty to one hundred in a few hours.

The fish are very similar to the fresh water fish of New York, only are taken in much larger quantities. One species in Leech Lake worthy of mention, is the Lake Superior white fish. They are only caught late in the fall with nets, and in the winter are speared through openings in the ice; they weigh about four pounds each. Mascalonge weighing as high as thirty pounds, are caught with a hook; they are very gamy, and make exciting work when caught. They resemble very much the common pike except in size.

The fare from St. Paul to Brainerd is $10, thence to Leech Lake $6. Leech Lake is an Indian Agency.

Itasca Lake. For game of vicinity, see Leech Lake.

Chisago County—

Rush City. Deer, ruffed and pinnated grouse; pickerel and pike. Reached via Northern Pacific Railroad. Hotel and private board $5 to $7 per week; teams $4 per day. Country rolling and timbered, with many lakes in the vicinity.

North Branch Station. Deer, bears; ruffed and pinnated grouse; brook trout and black bass. Reached via the Northern Pacific Railroad. Hotel $4 to $5 per week; teams $3 per day. The country is oak openings and swamp.

Cottonwood County—

From *Bingham Lake*, on the St. Paul and Sioux City Railroad, excellent sporting grounds may be reached. Ducks, geese, brant, cranes and swans abound in the lakes and sloughs, and pinnated grouse are found in great numbers on the prairie. Beavers, minks, muskrats, and other fur bearing animals are plenty.

Crow Wing County—

Brainerd. Moose, elk, deer, bears, wild cats in the dense woods east of Brainerd. Ducks of all kinds and geese in great abundance, snipe, plover, rail, pin-tail, pinnated, and ruffed grouse, partridges. In the lakes are black and rock bass, pickerel, pike, perch pike, mascalonge; and the *salmo fontinalis* in Trout Lake, thirty-five miles north and all the lakes, reservoirs for the Prairie River. Gull Lake, twelve miles north, Sullivan Lake, twelve miles west, Round, Long, and Fish Trap Lakes are also favorite resorts.

Brainerd, on the Northern Pacific Railroad, has a good hotel, and the sportsman will here find all conveniences for camping out, cheap outfits, boats, tackle, tents, guides, excellent hotel accommodations, and gentlemanly and obliging amateur sportsmen. Reuben Gray keeps a stopping place at Gull Lake, a good enough place for a hungry fisherman. West from Brainerd to the Red River along the line of the Northern Pacific Railroad, the country grows more open and streams, lakes, marshes increase until you reach the wonderful Red River Flats. Here it is entirely within bounds to say ducks can be found by the million. The shallow ponds, the streams, the larger lakes are alive with them. It is no uncommon thing to see a thousand at once from the car window. Passing on a hand-car, between stations, with a good dog, one could make a big bag without leaving the track. At times pinnated grouse are almost as abundant.

Withington is seventeen miles east of Brainerd on the Northern Pacific Railroad. In Serpent Lake are taken black and rock bass, mascalonge, pickerel croppies and perch. Forty rods from Serpent is Agate Lake where the fishing is excellent. On both these lakes boats can be procured. Half a mile further on is Rabbit Lake (Crow Wing County) a large body of water full of fish. Its outlet, a sluggish stream ten miles long and flowing into the Mississippi, affords excellent duck shooting.

Dakota County—

Hastings. Fine duck shooting on the river bottoms. Reached via the Chicago, Milwaukee and St. Paul Railroad, nineteen miles from St. Paul.

Dodge County—

Rice Lake. Splendid duck and goose shooting on Rice Lake. Reached by wagon from Pillager Station on the Pacific Railroad.

Douglas County—

Millerville. Fine ruffed grouse shooting. See Wadena.

Faribault County—

Winnebago City. Pinnated grouse abundant; black bass, pickerel. Reached via Southern Minnesota Railroad. Hotels $2; teams $2.50 to $3.

Delavan Station. There are in the neighborhood many lakes, sloughs, ponds and creeks, where the sportsman will find excellent shooting and fishing. Ducks, geese, cranes, snipe, curlew, and on the prairie great numbers of pinnated grouse. The lakes contain black bass, pickerel and other varieties. Reached via the Southern Minnesota Railroad.

Easton. For game and route see Delavan.

Wells. For game and route see Delavan. Good hotel; teams, and camping outfits can here be secured.

Freeborn County—

Albert Lea. In Fountain and Lea Lakes are found pickerel and other fish; in the vicinity, ducks, mallards, teal and red head, geese, brant, pinnated grouse, sandhill cranes in great abundance on the prairie. Reached via the Southern Minnesota Railroad. Board $3.50 to $5 per week.

Hayward. Pinnated grouse, and ducks of many varieties, at Lake Albert Lea. Reached via Southern Minnesota Railroad. Boats at the lake.

Alden. Pinnated grouse and duck shooting with fishing in the lakes. Reached via the Southern Minnesota Railroad.

Goodhue County—

Frontenac, located near the head of Lake Pepin, is an excellent resort for the tourist and sportsman. Rush River on the opposite side of the lake, is a good trouting stream.

Pine Creek, directly opposite this point, is another noted stream; also Wells' Creek, six miles below on this side. There are many other streams within fifteen miles of Frontenac, where that delicate and gamy fish can be found enough to satisfy the enthusiast.

Game is excellent, consisting of grouse, snipe, woodcock, rail, geese and ducks. In the great forest of Wisconsin, which can be reached immediately after crossing the lake, can be found within ten or fifteen miles, any amount of deer. Good lake fishing at all times can be had. There are other points on the lake where good accommodations can be had, with ready access to the sporting grounds. Six miles distant is Lake City, Wabasha County (which see). Lake Hotel $3 per day, $2.50 if one month or more; yachts, rowboats, and teams. Go via the Chicago, Milwaukee and St. Paul Railroad, or via the Mississippi River steamer. The Lake Side Hotel furnishes every accommodation.

Hennepin County—

Wayzata, twenty-eight miles from St. Paul, is at the head of Lake Minnetonka, a favorite summer resort. The lake contains black and rock bass, pickerel, croppies, perch, sunfish, pike, and a few catfish. Wood-duck, mallard, teal, and ruffed grouse shooting.

Many Minneapolis and St. Paul people run up for a day's fishing, as the train arrives at the lake about 9.30 A. M., and leaves Wayzata on its return about 5.30. There is also a train leaving the city about half-past four, and one at half-past six in the evening, during the summer, by which the sportsman is enabled to be on hand at daybreak, and have a full day's sport. Take the St. Paul and Pacific Railroad. Steamers ply on the lake between Wayzata and Excelsior. There are many boats to be procured, of all sizes and styles. Hotels and boarding houses are numerous on the shores of the lake, and furnish good accommodation.

Minneapolis. Pinnated grouse, partridges and woodcock; along the Minnesota River bottom, wild pigeons, plover, ducks. Excellent fishing and wild fowl shooting on the chain of lakes which lie three miles from the city. These are *Lakes Harriet* and *Calhoun*, *the Lake of the Isles*, and *Cedar Lake*, (the location of the Oak Grove House), while still further on, some fifteen miles distant, *Lake Minnetonka*, approachable by railroad, and one of the largest and most beautiful sheets of water in the State, offers its charms to the visitor or resident, affording abundance of fish and wild fowl, and sailing and boating. To the east a few miles, is *White Bear Lake*, Ramsey County (which see).

Houston County—

Hokah. There are several fine trout streams in the vicinity. Hokah is on the Southern Minnesota Railroad, which connects at La Crosse, with the Chicago, Dubuque and La Crosse road.

Itasca County—

In the rice and cedar swamps, with which this county abounds, are found numerous deer, moose, bears, ducks, geese, etc. This county is reached by stage from Brainerd. Provide camping outfit.

Kandiyohi County—

Green Lake. Deer, ducks, partridges, pinnated grouse. Take St. Paul and Pacific Railroad to Willmar.

Kanabec County—

Brunswick. Bears, deer, ruffed grouse, ducks. Take Northern Pacific Railroad to Pine City, (which see), thence wagon twenty miles west. Good camping grounds on the shores of the neighboring lakes. Boats and guides are to be had.

La Sueur County—

Kasota. Around the village are many little lakes, in which fish may be taken in any season of the year. Reached via the Chicago and Northwestern Railroad. The Kasota House is the best hotel.

McLeod County—

Glencoe, the terminus of the Hastings and Dakota branch of the Chicago, Milwaukee and St. Paul Railroad, is a good starting point from which to reach the Yellow Medicine and Lac Qui Parle country. Pinnated grouse, sandhill cranes, ducks, geese, mallards, yellow shanks, etc., are found in the vicinity.

Macon County—

Macon. Good bags of ducks are made on the Chariton bottoms. Quail shooting in the neighborhood. Macon is on the Hannibal and St. Joseph, and the St. Louis, Kansas City and Northern Railroad.

Martin County—

Starting from *Fairmont* and other places the sportsman will find the game of the county similar to that of Noble County, which see. Take the St. Paul and Sioux City Railroad to Madelia, thence wagon road.

Meeker County—

Litchfield. Fine duck and goose shooting can be found within four hours drive of Litchfield. Take the St. Paul and Pacific Railroad. A good hotel. The pass between Lake Koronis and Mud Lake is a famous place for ducks and geese, with pickerel in the lakes and grouse and pheasants in the vicinity. Take the St. Paul and Pacific Railroad and learn from the conductor where to leave the road. Provide camping equipments.

Mower County—

Grand Meadow. Pinnated grouse, wild geese, ducks, sandhill cranes, etc., afford fine sport. Reached via the Southern Minnesota Railroad.

Nicollet County—

St. Peter. Ducks, geese, brant, ruffed grouse, woodcock, snipe, ring-necks, golden plover; black and rock bass, wall-eyed pike, pickerel, California salmon in Lake Emily; deer in the woods near the city. Reached via the Chicago and Northwestern Railroad. Hotels $2 per day; teams $3; boats at moderate charges. Excellent camping grounds. Prairie and heavily timbered country.

Austin and Lyle. See Greene, Butler County, Iowa.

Nobles County—

Worthington. Starting from this place the sportsman will find on the prairies great numbers of pinnated grouse, on the lakes, ponds and sloughs, ducks, mallards and other varieties, geese, brant, cranes, swan, plover, and other varieties of wild fowl. Beaver, mink, muskrats innumerable, and other fur bearing animals are to be found. Take the St. Paul and Sioux City Railroad. The county abounds in lakes which are filled with black bass and pickerel.

Olmsted County—

Rochester. Game is abundant on the surrounding prairies. Reached via the Chicago and Northwestern Railroad.

Otter Tail County—

Pelican Lake. Good deer shooting. Reached via Northern Pacific Railroad to Detroit, thence wagon. At the hotel, guides, dogs, etc., will be found; address Warfield Bro's., Proprietors.

New York Mills. Bears, deer, ducks, geese, ruffed grouse, beavers, otters, minks, foxes, wolves. Reached via Northern Pacific Railroad. Private board $5 per week; guides, $1.50 per day; teams $2 to $3. Country rolling prairie, and heavily timbered.

Parker's Prairie. There is abundance of grouse on the uplands, ducks and geese on the ponds, ruffed grouse in the thickets, with good woodcock shooting. There is only one objection to Parker's Prairie as a resort for sportsmen; it is so far from the railroad that one cannot dispose of the game he kills, neither can it be given away, as every settler can kill at any time (almost in his door yards), all the grouse and ducks he can consume; consequently the killing of game there as a sport degenerates into needless butchery. As a place to break young dogs and spend a few days in luxurious idleness among the hospitable settlers at a moderate cost, we know not its equal in the State. Parker's Prairie is reached via wagon road from Wadena (which see). Fine duck, goose, woodcock and other shooting can be found on the route.

Otter Tail City. On the road from Otter Tail to Wadena via Deer Creek is excellent sharp-tailed grouse shooting.

Pembina County—

In the vicinity of the Red River of the North are found pinnated grouse, ptarmigan, wild fowl, rabbits and deer, with bass fishing in the lakes. Reached via Northern Pacific Railroad to Fargo, thence by Red River line of steamers.

Pine County—

Pine City. Bears, deer, ducks, ruffed grouse; black and white bass, wall-eyed pike and pickerel. Reached via the Northern Pacific Railroad. Good hotels $1.50 per day; boats $1 per day; teams $5. Rolling and heavily timbered country.

Hinckley. Deer, bear, ruffed grouse; pickerel and other varieties of fish Reached via the Northern Pacific Railroad. Hotel $2 per day. Good camping grounds near Grindstone Lake and River.

Pope County—

Lakes Johanna, White Bear, and Reno, are all excellent duck shooting grounds. Go to Lake Johanna, a town on this lake, to Winthrop, on White Bear Lake. Reached by highway from Randall, on the St. Paul and Pacific Railroad.

Ramsey County—

White Bear Lake, twelve miles from St. Paul, is an excellent shooting centre. The game in the vicinity comprises pinnated grouse, ruffed grouse, pigeons, quail, foxes and deer, and in the lake are pike, pickerel, salmon, (wall-eyed pike), bass, croppies, sunfish, perch, etc. Bald Eagle is a meeting place for trains from four different directions, viz.; St. Paul, Duluth, Minneapolis, and Stillwater. The Lake Superior and Mississippi Railroad runs daily seven trains from St. Paul, three from Stillwater, and four from Duluth, and the Minneapolis and St. Louis Road three from Minneapolis. There are three large hotels, and a number of private boarding houses; cost of board from $1.50 to $3.50 per day. Boats and boatmen at reasonable rates.

St. Paul. Fine duck shooting at the rice lakes, within fifteen miles of the city. The game includes teal, blue bills, mallard, wood ducks, canvas-backs, with wild geese at times, grouse, snipe, pheasants, pinnated grouse. Go to Ellsberg's where good accommodations can be secured. The pass, a favorite locality, is near his house.

Rock County—

For the game of the county, see Noble County. Take the St. Paul and Sioux City Railroad to Bigelow, Noble County, thence stage or hired conveyance.

St. Louis County—

Duluth. Deer are abundant. In the St. Louis and Chester Rivers, black bass are caught in great numbers. In King's, Kingstons, and Buffalo Creeks is excellent brook trout fishing. Reached by Lake Superior steamers, and via the

Illinois Central and Northern Pacific Railroads. Hotel and private board $3 per day; boats $1 per day.

Fond du Lac Deer, ruffed grouse, ducks; brook trout, pickerel, wall-eyed pike; with other varieties of game and fish. Many lakes and several rivers, all affording fine sport, are within ten miles. Reached via the Chicago and Northwestern, and the Sheboygan and Fond du Lac Railroads. Hotels $2 per day. Guides $1.50 to $2 per day.

Scott County—

Shakopee. Pickerel and bass in Long Lake. Deer in the neighborhood. Shakopee is on the Chicago, Milwaukee and St. Paul, and the St. Paul and Sioux City Railroads.

Todd County—

Long Prairie. Deer, ruffed and pinnated grouse shooting, and black bass and pickerel fishing. This is a difficult country to still-hunt in, as the bushes are thick, and the dry leaves lie thickly on the ground, and make a great rustling when trod on. Moccasins and leggins are necessary to hunt in here, in the fall. The bucks commence running about October 14th. The deer are found mostly in oak timber, where they feed on acorns. They hide in the tamarack swamps during the day, and feed and travel during the night. Take the St. Paul and Pacific Railroad to Sauk Rapids, thence wagon.

Sherburne County—

Big Lake Station is fifty miles from St. Paul, on the St. Paul and Pacific Railroad. Black bass are caught in the lake, a variety of shooting in the neighborhood.

Wabasha County—

Wabasha. Fine pickerel fishing in the Zumbro, three miles from here. For route see Frontenac, above.

Lake City, on the shore of Lake Pepin, is headquarters for the fishing and hunting of this vicinity. The lake and its tributary streams abound in a variety of game fish, including black and striped bass, pike, perch, pickerel, mascalonge, sheepshead, herring, catfish, croppie, moon eye, eel, sturgeon and buffalo fish. Mascalonge here are of large size, usually ranging from ten to forty pounds in weight. They are best caught by rod and line from the shore, or by wading out upon the bars. The black bass are caught in the same manner, or by trolling. The bass are many of them very large, some having been caught, weighing more than seven pounds, few less than three pounds. All the fish here are taken near the shore, or in the shallow water on the bars, except the wall-eyed pike. The private pond known as Kyle's, or Pine Creek Pond, six miles from Lake City, and directly opposite Frontenac, is a famous trout pond, where good fishing may be enjoyed by paying a fee of thirty cents per pound for fish caught. The ground is reached by steamer or small boats. Comfortable farm-house accommodation can be secured here, and hotels will be found at Maiden Rock, Wis, a village one and a half miles distant. There are several other streams affording fair trout fishing. Plumb Creek and Rush River are well-known. The latter enters Lake Pepin eight miles above Lake City, and may be reached by boat or team. Plumb Creek, the same distance, is reached by team. The gentleman sportsman will find entertainment at any of the farmhouses in the vicinity of these waters. In the neighborhood of Lake City, a variety of sport for the gunner will always be found. Pinnated grouse are here in great abundance; ducks and geese are abundant; a few snipe and woodcock, and many wild pigeons furnish excellent shooting. Of larger game there are deer and bears abundant within ten and fifteen miles. Lake City has excellent accommodations, and in the vicinity are many good camping grounds. Boats, teams, fishing tackle, decoys, and all necessary outfit may here be found. For route, see Frontenac, above.

Reed's Landing. Excellent salmon fishing in the Chippewa River, opposite the town, in Wisconsin. Route as above.

Wadena County—

Wadena, on the Northern Pacific Railroad, forty-five miles beyond Brainerd, is an excellent centre from which to reach the finest shooting grounds the State affords. There is a hotel, and teams can be readily procured. See Parker's Prairie. From Wadena a pleasant trip may be made by taking hired conveyance to Parker's Prairie Millerville, and thence return via Otter Tail and Deer Creek.

The game includes pinnated grouse, partridges, ducks, geese, plover, etc., in great quantities.

Waseca County—

Janesville is on the outlet of Lake Elyrian, a beautiful body of water well stocked with many varieties of fish. Reached via the Chicago and Northwestern Railroad. There are two hotels. Stages run to Okaman, at the head of the lake.

Washington County—

Stillwater. Steamers can here be chartered for trips down the St. Croix Lake, for duck and geese shooting. Deer and other game are found in the adjacent country. Stillwater is twenty-four miles from St. Paul, on the Lake Superior and Mississippi Railroad. There are good hotels.

Winona County—

Minnesota City is on the Rolling Stone River, at the headwaters of which many trout are caught. Reached via the Chicago and Northwestern Railroad.

Winona. Ducks, geese, pinnated grouse and quail. Lake Winona adjoins the city limits, and in an early day was so noted for its game, that its surroundings were named "Prairie of Winged Fowl." The county is quite famous for its trout streams. Reached via the Chicago and Northwestern Railroad.

MISSISSIPPI.

Area 47,156 square miles; population 827,922. From the northeast the surface of the State slopes with many undulations, west to the Mississippi River and south to the Gulf of Mexico. Extending through the centre of the State is a broad low ridge, on which are cultivated farms and extensive dense forests. The larger portion of the surface may be described as rolling prairie, in places broken and undulating. From the line of the Vicksburg and Meridian Railroad between Jackson and Meridian, an extensive pine forest stretches to the Gulf of Mexico. The forests of the State all abound in large game. Much of the State is still wild and unsettled, and there the hunter will find a variety and abundance of the game common to this latitude. The best hunting grounds are reached via the numerous steamboat lines which penetrate the State, or may be easily reached from the different railroad lines. Accommodations, as a rule, are poor. When practicable, the best plan is to camp in the vicinity of some farmhouse where necessary supplies may be obtained.

Adams County—

The district between Woodville and Natchez abounds in deer and other game. There is a good tract between the two places, with occasional plantations where the sportsman may find entertainment. Some of the planters have packs of fine hounds.

Kingston is the centre of a fine deer country. Beavers and otters abound in such numbers as to be a great nuisance. Black bass, perch, gaspereau, etc., are taken in the rivers.

Alcorn County—

Corinth. Woodcock, quail, turkeys, ducks, pigeons, deer, squirrels, black bass, perch. The old fields around Farmington, a dozen miles from Corinth, are

much resorted to by gunners in pursuit of quail, turkeys, deer, and the like. Corinth is reached via the Mobile and Ohio, and the Memphis and Charleston Railroad; or by Mississippi River steamers.

Bolivar County—

This county abounds in deer, bears, wild turkeys, ducks, geese, quail, squirrels and other kinds of large and small game. Take Mississippi River steamer to Bolivar, Victoria, or Concordia, thence strike inland. Guides and all necessary information will be found at any of these places. The eastern part of the county may be reached via the Sunflower River.

Carroll County—

Deer are found throughout the county, bears, wild turkeys, water fowl, with many varieties of small game. The fishing is good. The county is bounded on the west by the Yazoo River on which steamboats ply. The eastern portion is accessible by the Mississippi Central Railroad. Good starting points are Greenwood on the river, and Duck Hill, Winona and Shongola on the railroad.

De Soto County—

This county is full of game of many kinds and great abundance. By taking the Mississippi and Tennessee Railroad from Memphis, and stopping at Coldwater, or Sinatoby, the sportsman may easily reach splendid hunting grounds.

Hinds County—

Jackson. Partridges, woodcock, snipe, ducks, turkeys and deer. Reached via the New Orleans, St. Louis and Chicago, or the Vicksburg and Meridian Railroad.

Jackson County—

Grand Bay. Deer, bear, etc., with good fishing. Reached via New Orleans, Mobile and Texas Railroad.

Lauderdale County—

Meridian. Deer, wild turkeys, quail, and small game; jack fish, trout and perch. At the junction of the Alabama and Chattanooga, Mobile and Ohio and Vicksburg and Meridian Railroads. Hotel $1.50 to $2.50; boats; teams $2 to $5. Mountainous and rolling country.

Marshall County—

Many kinds of game are found in abundance throughout the county. The Mississippi Central Railroad traverses the county, and from any of the stations on this line the sportsman may easily reach good game grounds. Go to Holly Springs or Waterford.

Monroe County—

Smithville. There is excellent shooting in all the surrounding country, and fair fishing in the Tombigbee and its tributary streams. Take the Mobile and Ohio Railroad.

Panolo County—

There is no section of the State which affords more game than that lying between the Tallahatchie, Coldwater and Mississippi Rivers. Take steamboat to Austin, thence inland, or go via the Mississippi and Tennessee Railroad from Memphis, or the New Orleans, Jackson and Great Northern from New Orleans. Robinia, Panolo, or Como will be found good centres for starting out from the railroad.

Sunflower County—

For game and route see Washington County.

Tallahatchie County—

This region is a magnificent game country. Deer, bears, ducks, geese, quail, and many other varieties of game afford excellent shooting. The county may be reached from the Mississippi and Tennessee Railroad, or by boats from Vicksburg via the Tallahatchie River which traverses the county. Much of the county is swamp land full of game. The steamboat officers are all sportsmen and can give every direction to sportsmen. Provide camping outfit.

Tunica County—

Hudson's Ferry, on the Coldwater River. A fine trapping region. Otters, beavers, coons, minks and muskrats are found. Ducks, geese and brant are also plenty in season.

Hudson. This section of the State, near the Mississippi River, is an excellent region for bears, deer, panthers, wild cats, wild turkeys, geese, swan, ducks, partridges and squirrels. Board can be had among the farmers, for $6 and $10 per week.

Austin is a convenient centre for sport in the Mississippi Bottom. Deers, turkeys, ducks, and other game are abundant, with occasionally a bear. The route is via the river steamers. Immediately behind the levee, there is generally a cypress swamp, a belt of cottonwood trees or a dense canebrake. Behind these swamps and canebrakes, lie the cultivated fields, and the deadening or burnt tracts. In these fields of deadening, the deer lie ruminating, and dogs give tongue before they have been in their covers many minutes. Deer are to be had either by still-hunting them, or by running them before the dogs; but as the former method requires not only great experience, but also an accurate knowledge of the country, a stranger will find the other the more productive and satisfactory of the two. Although some of the planters in the Bottom keep their own packs of hounds, yet it will be as well for the sportsman, if he go south with the intention of running deer, to take along a couple of dogs. The people are generally very ready to point out the deer passes, or stands. Still farther back from the river stretches the great forest, encroached upon at intervals by patches of cleared land, and intersected by lengthy bayous and broad lagoons. Here the sportsman may bag ducks and geese innumerable, and swans also, if he can stalk them. All kinds of water fowl are very abundant, and may be shot in many places where they are easily recovered at the cost of a wetting; but when one has to thread his way among the lagoons and bayous, a good retriever is an almost indispensable assistant. Some of the lagoons are of great extent, and are almost invariably provided with a skiff, a dug out, or a floating machine of some sort, the use of which is generally to be had without any trouble by an application to the neighboring planter, whose property it is. The winter months are the best for sport. The country at other seasons is unhealthy.

Washington County—

This county and those adjoining, through which the Sunflower River flows, afford excellent duck, wild goose, squirrel, coon, deer, bear and panther hunting; and striped bass, black bass, and white and bachelor perch fishing. To reach this county take steamer from Vicksburg, up the Big Sunflower River. Provide camping equipments. Information as to the best localities can be obtained from the officers of the steamers.

Greenville. The Deer Creek country, running parallel with the Mississippi for one hundred miles, has its principal outlet here. Bear, deer, and small game abundant. Excellent fishing in Washington and Lee Lakes. Reached from New Orleans, St. Louis, or Louisville via steamer.

Yazoo County—

The county offers abundant employment for both rod and gun. Bears, deer, wild turkeys, quail, etc., ducks, geese, and many other varieties of game are here in great numbers. The county is traversed by the Yazoo River, by which access is had to the game grounds. The New Orleans, Jackson and Great Northern Railroad touches the eastern border of the county.

Wilkinson County—

Woodville. Between this town and Natchez will be found a good game country. (See Adams County.)

MISSOURI.

Area 65,350 square miles; population 1,721,295. The northern and north-western portions of the surface are for the most part rolling prairie, interspersed with hills of timber. South of the Mis-

souri River are the highland bluffs, and below these in the south-western part are low and swampy lands subject to overflow from the river. In the south-west are the Ozark Mountains; north of these the valley of the Osage River is principally rolling prairie. The Missouri and its tributaries are all lined with belts of dense forest. A large part of the State abounds in game of various kinds. The prairies are full of wild fowl and grouse and the forests with the larger species of animals. The facilities of travel are generally good.

Carroll County—

Lima Lake. Geese, brant and ducks afford fine sport on the lake. Go to Lima.

Cass County—

Harrisonville. Rabbits, squirrels, pinnated grouse, quail, ducks, geese, brant, snipe and other varieties of water fowl; bass, croppies, etc. Payne's and Bates' Lakes, distant seven and seventeen miles, are the best shooting grounds. Reached via the Missouri, Kansas and Texas Railroad. Hotels $1 to $1.50 per day; teams $3 per day. At Bates' Lake, in the town of *Everett*, the sportsman will find accommodations at the house of J. Bodenhammer. For further particulars address, at Harrisonville, Mr. R. A. Brown.

Chariton County—

Mendon. Duck shooting on the lakes about the Chariton. Grouse and quail in the neighborhood. The county is traversed by the St. Louis, Kansas City, and Northern Railroad, from any of the stations on which line good shooting grounds may be reached.

Cole County—

Jefferson City. Good quail, turkey, wild goose, duck; and deer shooting on the Osage River, eight miles from the city. Reached via the Missouri Pacific Railway.

Crawford County—

The game of this region is very abundant, embracing quail, squirrels, wild turkeys and deer. The fishing is for perch, bass and cat fish. Reached via the St. Louis and San Francisco Railroad to Leesburg and adjacent points.

Daviess County—

Gallatin. Deer, turkeys, quail, ducks and snipe. Reached via the Omaha Branch of the St. Louis, Kansas City and Northern Railroad.

Franklin County—

Along the Maramec River is good wild fowl shooting and in the more unsettled portions of the county are deer and wild turkeys. This country is reached from Calvy, Stanton, Sullivan and other points on the St. Louis and San Francisco Railroad.

Gasconade County—

In the vicinity of the Gasconade River quail are very plentiful along the entire valley; pinnated grouse are of rare occurrence. The duck shooting is fair. Squirrels are, along the valleys where it is wide enough for farms, surprisingly numerous. The great game attraction, however, of the beautiful Ozark range, and especially of the Gasconade region, is deer; these, with wild turkeys, are easily found in great numbers by even inexperienced hunters.

The Gasconade takes its rise in the heart of the Ozark Mountains, which extend from the Missouri River, near its mouth, in a southwesterly direction across this State and part of Arkansas. Fed by innumerable boldly flowing springs of almost icy coldness, and reinforced by numerous affluents, the chief of which are the Big and Little Piney and the Bourbeuse, it pursues a tortuous course, mainly in a northeasterly direction, and enters the Missouri near Hermann, in Gasconade county. The river with its tributaries teems with pike, perch, (locally known as

jack salmon), bass, and large channel catfish. Those whose acquaintance with the catfish family is confined to its fat, sluggish, repulsive representative of stagnant ponds and muddy creeks, can have no conception of the sport afforded by its slender, shapely and powerful cousin of the spring-fed streams flowing into the Missouri from the Ozarks. With the forked tail and adipose dorsal of the salmon, long, graceful, muscular body, hardened by conflict with fierce rapids, and invigorated by pure cold water, its capture, if of large size, is an event long to be remembered.

Provide boats and camp equipage, and go via the Atlantic and Pacific Railway, to Arlington, a town situated at the point where the railroad crosses the river, ninety miles above its mouth, and one hundred and twenty miles from St. Louis. Thence take wagon to Smith's. Then fish down the river, back to Arlington, sending your baggage via wagon to the different camping stations along the bank. Fishing is done with fly and spoon. Of the latter the single 00 hook No. 6, Buell spoon attached to a line with a single gull snell is the best tackle.

Howard County—

Fayette. A few turkeys; wild fowl, partridges and quails abundant, rabbits, squirrels; catfish, trout, bass. Reached via Missouri, Kansas and Texas Railroad. Hotel, Howard House, $2 per day; teams with driver $3 per day.

Jasper County—

Carthage, on the Memphis, Carthage and Northwestern Railroad, is a good centre from which to go, via hired conveyance, to the pinnated grouse grounds near at hand.

Laclede County—

Lebanon. Ten miles from the St. Louis and Pacific Railroad at this point, excellent wild turkey shooting may be found.

Lewis County—

La Grange and Vicinity. The Mississippi River, at this point, contains many islands, densely wooded and full of lakes, ponds and sloughs. The bottom lands on each side of the river are of the same general character, with now and then extensive prairies. In this region on either side of the river, are great numbers of mallards, blue and green-winged teal, widgeons, pintails, redheads, wood ducks, and other varieties; geese, swans, cranes, pelicans, wild turkeys, woodcock, snipe, ruffed and pinnated grouse, quail, and a few deer. The fish include the bass, pickerel, perch, wall-eyed pike, catfish of several varieties, croppie, etc. Reached via the St. Louis, Keokuk and Northwestern Railroad, or by Mississippi steamer. Hotel and farmhouse board can be obtained at any of the towns along the river. See Lima, Illinois.

Livingston County—

Shoal Creek. Deer, turkeys, pinnated and ruffed grouse, quail. The Hannibal and St. Joseph, and other railroads, traverse the county, and on the lines of these roads good shooting will be found. The country is wild and rugged.

Marion County—

Hannibal. Excellent teal and wood duck shooting. Quail are abundant, and wild turkeys plenty on the Salt River bottoms.

Monroe County—

Monroe City. Duck, quail, snipe, pigeons, pheasants, pinnated grouse, a few wild turkeys, and an occasional deer. Catfish, perch, and buffalo fish are abundant. Reached via Missouri, Kansas and Texas Railroad, or Hannibal and St. Joseph Railroad. Hotels $2 per day; team with driver $3 to $4.

Morgan County—

Maradosia. Duck shooting may be found near the town.

Pettis County—

Sedalia. Pinnated grouse, plover, quail, woodcock, snipe, ducks, mallards, on the flat creek bottom lands; foxes, squirrels, rabbits. Reached via the Missouri, Kansas and Texas Railway. Hotels $2 to $3 per day; board in private family, $30 to $40 per month. Good liveries. At Flat and Big Muddy Creeks, three miles from the town, are excellent camping grounds.

Beaman, a station five miles north, is a favorite resort for shooting small game.

Pike County—

Clarksville. Snipe shooting is excellent on the marshes back of the town.

St. Louis County—

St. Louis. In the vicinity sportsmen may find several resorts where duck, goose, and other wild fowl shooting may be enjoyed. The prairies a few miles northwest, are excellent grounds for mallards and brant. Murdock Lake, thirty miles south, reached by steamer, or hired conveyance, is the most frequented shooting and fishing ground. Ducks are here in great numbers. The fish are the black bass, dog fish, catfish, croppies, and others. The Murdock Lake Club have a club house here. The best grounds are obstructed by logs and tree tops, hence it is not feasible to use fancy tackle, reels, etc. (See Monroe County, Illinois.) Six miles east of the city, in Illinois, Breese Lake affords excellent duck shooting.

The St. Louis and King's Lake Fish Breeding Association hold their grounds seventy miles up the river, and four miles back of Sterling's Landing. This lake is twenty-five miles long, by an average of a half a mile wide. It is fed by springs and river, and abounds with croppies and black bass. Adjoining are extensive prairie hunting or shooting grounds. This is said to afford the best fishing waters within one hundred miles of the city. The club has an extensive boat club house, with all the appliances for fishing and good cheer. It numbers about eighty members. The railroads radiating from St. Louis render easy of access many fine hunting grounds in Illinois and Iowa.

Vernon County—

Schell City. Mallards, teal, spike-tails, wood ducks, geese, snipe, plover, crooked bill curlew, quail, pinnated grouse—one of the best localities in the State—rabbits, wild turkey and small game; fish abundant in Osage River; deer thirty miles east on the Sac River. Reached via the Missouri, Kansas and Texas Railroad. Excellent hotel, teams, etc. Schell City is situated on a high upland prairie, looking down toward marshes, valleys and meadows.

Wayne County—

Williamsville. Ducks, brant, geese and cranes in Big Lake, about thirty miles distant. Reached via the Iron Mountain Railroad, from St. Louis, distance one hundred and forty-five miles. Joe Deine is an excellent guide.

MONTANA.

Area 153,300 square miles. The surface of the country is generally mountainous. The Rocky Mountains extend through this territory, entering at the northern boundary, stretching south and southeast for two hundred miles, and then curving toward the west to Idaho. In the west are also the Bitter Root Mountains with minor chains through the country. The rest of the surface is made up of rolling prairie lands, interspersed with islands of forests. The country is thinly settled, travel is confined for the most part to wagon trails, and these trails are often infested by hostile Indians. The Northern Pacific Railroad forms the best means of access, and at the stations on this road, the sportsman may find guides and all outfit for camping.

Choteau County—

Fort Benton. In Montana among the eastern foot-hills of the main divide are

to be found elk, black and white-tailed deer, buffalo, bears, moose, mountain sheep, and antelope in large numbers. All the streams are full of pike, perch, catfish, sturgeon perch, suckers, trout, grayling and salmon trout. Fort Benton is a good place to start from, traveling north along the base of the mountains. Take the Northern Pacific Railway to Bismark, thence steamer up the Missouri River. There is plenty of game all along the river region between Bismark and Fort Benton, and the river and its tributaries are full of fish.

Fort Belknap is situated above the two forks on the Milk River, two hundred and fifty miles from Fort Buford, one hundred and seventy miles from Fort Peck, two hundred and forty miles from the city of Helena, one hundred miles from Fort Benton at the head of navigation on the Missouri River, twenty-five miles from the boundary line. The outlying country is filled with game, buffalo, white and black tailed deer, antelope, elk, and at the Little Rocky Mountains, thirty miles southeast, are quantities of bears, big horns, mountain sheep, and smaller game in abundance. To reach this county start from Sioux City, early in the season, say in April, in time to take the first boat for Fort Benton, a trip occupying nearly a month; thence a day's ride into a country not attractive from surroundings, on the contrary desolate from the monotony of the prairie, but full of the game mentioned.

Deer Lodge County—

Deer Lodge City. Foxes and hares, of the latter two varieties. Reached via the Union Pacific Railroad to Kelton, thence via stage.

Lewis and Clarke County—

Helena. Grizzly bear, elk, antelope, moose, deer, jack-rabbits, pinnated grouse, snipe, curlew, ducks and geese; trout and salmon trout. Take the Utah Northern Railroad from Ogden to Franklin, Idaho, thence stage four hundred and twenty miles. Mountainous country.

Deadwood City is in the heart of a game country, most easily reached by the following routes:

No. 1, beginning at Bismark, Dakota. No. 2, beginning at a point on the right bank of the Missouri, known as Fort Pierre, or some point not over eighteen miles north of that place. No. 3, beginning at the Yankton crossing of the Missouri river, and thence up the south bank of the Niobrara to its crossing opposite the mouth of the Keya Paha river, thence up the latter stream to or near the sources of the Porcupine Creek. All are to cross the 103d meridian on the shortest and most practicable route, the first two to Deadwood, the third to Custer City. There is a tri-weekly mail service between Kearney, Neb., and Deadwood, in the Black Hills region, three hundred and thirty-nine miles, and a daily service between Hat Creek and Deadwood, one hundred and twenty-one miles. There is daily mail communication with Hat Creek and the Union Pacific Railroad at Cheyenne. The distance from Deadwood from the railroad is two hundred and thirty-five miles.

Deadwood City is a good starting point for a campaign in the Black Hills. Elk or wapiti are very numerous on Rapid Creek, Elk Creek, and Red Water. Black-tailed deer, white-tail deer, antelope, on the prairie and foot-hills, mountain sheep along the foot-hills, jack-rabbits, common hares, red squirrels, ground squirrels, wild geese and ducks in the spring and fall, pinnated grouse in the foot-hills, sage hens in the timber near the prairies, ruffed grouse and quail in the hills, all are very numerous, and afford attractions to the sportsman not often found in one locality. Cinnamon and black bears, mountain lions, grey wolves, prairie wolves, beavers and otters are common.

The Sweet Grass Hills are in Northern Montana near the boundary line of the United States. These hills are separated into two ranges by a belt of prairie about ten miles wide. The well known landmarks the Three Buttes are in this neighborhood. This locality is a splendid game country. Elk, mule deer, buffalo, bears, mountain sheep and antelope abound. These hills are visited by many tribes of Indians in the hunting season.

The Yellowstone Valley—

The Yellowstone Valley abounds in game of great variety and abundance. The varieties comprise the buffalo, elk, mountain sheep, grizzly bear, antelope California lion, hare, squirrel, several species, swans, pelicans, Canada geese, brant, many varieties of ducks and dippers, herons, sandhill cranes, grouse and pinnated grouse. The streams are filled with large salmon trout of great weight and fine flavor. Grayling also abound. Entrance to this valley is through the

cañon of the Yellowstone, and this can be gained only during the months of June, July, August, and September. There is also a trail over the mountains, touching the upper end of the valley leading from the great Shoshone Falls and head of the Snake River, via the head waters of the Madison and Gallatin rivers—both of which have valleys similar to, but much smaller than the Yellowstone—to the great buffalo range between this district and the Missouri. This is known as the Bannock Trail.

The sportsman will go by the Pacific Railroad to Evanston or Cheyenne, and thence to Fort Ellis, six days from the Great Basin, with fine hunting and fishing all the way. He will require heavy clothing, and all the requisites for camping out. The travel will not be found especially difficult, nor will the danger be great, as the Indians, having a superstitious reverence for the valley, believing it to be the abode of the Great Spirit, never enter it. One very fine cañon of the Yellowstone can be reached from Fort Ellis in a very few hours, being about twenty miles from that place and ten or eleven above the Crow Indian Agency.

NEBRASKA.

Area 75,995 square miles; population 116,196. The surface of the State is a rolling prairie, rising gradually towards the west into the foothills of the Rocky Mountains. There is very little forest or timber land in the State. The country is still, in a great measure, unsettled and abounds in all the game common to the plains of the West. The means of communication are imperfect, but from the line of the Union Pacific and other railroads, hunting parties may start out to the game regions, which will be found of easy access. The sportsman must, in a large measure, depend upon the results of the chase.

Adams County—

Juniata. Adams county is situated in the southern part of Nebraska, forty-five miles from State line, and about one hundred and sixty miles west of Missouri River. It is one of the best parts of the State. Game is plenty. Buffalo, elk, antelope, pinnated grouse, geese, and most all other kinds of game. There is no fish to speak of, except in the Platte River, twelve miles north of Juniata. Juniata is on the Burlington and Missouri River Railroad in Nebraska, one hundred and fifty-eight miles from Omaha.

Antelope County—

Antelope. Antelope, black-tailed and white-tailed deer, grouse, jack and brush rabbits. Reached via the Union Pacific Railroad. Guides $2; teams $4. The country is rolling prairie and limestone bluffs, covered with short buffalo grass.

Boone County—

Deer and elk are plenty in the county, and farther west. Take Union Pacific Railroad to Silver Creek. (See Jackson, Dakota County.)

Buffalo County—

Gibbon. Deer, antelope, grouse, pinnated grouse, geese, ducks, jack and brush rabbits; with good fishing in the Wood and Platte Rivers. Reached via the Union Pacific Railroad. Board $5 per week; team with driver $3. Country level and rolling.

Shelton. Some antelope and deer; geese, ducks and pinnated grouse in abundance, and fish of several varieties. Reached via the Union Pacific Railroad. Hotel $4 per week; teams $5. Provide camping outfit. The country is prairie and high table lands.

Elm Creek. Buffalo, deer, antelope, geese, ducks and grouse; a variety of fishing in the Elm and Buffalo creeks, and the Platte River. Reached via the Union Pacific Railroad. Board $1; teams $3. Prairies and bluffs.

Kearney Junction. Elk, deer, antelope, a few buffalo, pinnated grouse, quail, snipe, woodcock, plover, geese, ducks, jack rabbits, beavers, otters, minks; a variety of fishing. Reached via Union Pacific Railroad. Hotel $2, private board $5 per week; teams $3. Provide camping equipments. Rolling prairie. Fifty miles to the southward flows the Republican River; the banks of which are still the feeding ground of countless numbers of buffalo, and the hunting ground of the brave Pawnee, the treacherous Sioux, and many other smaller tribes of Indians. Fifty miles to the northward lies the Loup Fork, once the undisputed home of the Pawnee, and now a sort of debatable ground between their Reservation and that of their deadly enemies, the Sioux. On the banks of this river are grand elk grounds. A little further to the west among the sand hills, feed the watchful antelope; beaver and otter are in every stream. The open prairie furnishes chickens, sharp tailed grouse, and upland plover, while the river bottoms teem with quail, and occasionally we find a drove of wild turkeys. Deer, both black-tail and Virginia, abound both in the rivers and along the creeks. In short, whether the sportsman carry his rifle or shot-gun, or both, he will find work enough.

The Loup River country abounds in elk (or wapiti), the black-tail or mule deer, the white-tail, or red deer, the pronghorn antelope, and occasionally a stray buffalo. Musquash, beaver and otter are found in nearly all the shallow, swiftly-running streams. Of game birds, there are the sharp-tailed grouse, common pinnated grouse, and in their season, all the water fowl common to the west. The Loup River is a miniature Platte, (of which it is a tributary), in many respects, and drains with its branches much of northwestern Nebraska. The Upper Middle Loup, where the best hunting is, has the same broad channel, and innumerable sand bars. Its low banks and many islands, are densely covered with a thick, tall growth of coarse grass, weeds, and willow brush. The country lying adjacent to this river, and its main branch, the Dismal, is, to say the least, very hilly, being composed of ranges of bluffs lying parallel to the river, and succeeding each other at intervals of one or more miles, as far as the eye can reach. The intervening valleys are made up of short, sharp ridges and steep-sided knolls, usually but a few yards apart. Deep cañons from the river, wind out into the various ranges, furnishing timber of several kinds, including cedar, elm, ash, box-elder, and many brush thickets. The first grows in thick dark clumps along the steep sides, and is intermixed with the latter varieties, along the level, floor-like bottoms of the cañons. Such grasses as are indigenous to the soil, grow sparsely on the up-lands, among which is the famous buffalo or gramme grass. The low-lands furnish a rank growth of "blue-stem," or "blue-joint," everywhere common in the West.

The elk, and black-tail deer range among the highest points of the bluffs; the former in bedding choose some elevated spur or ridge, while the mule-deer bed in "blow-outs" (excavations made by the elements in the loose soil) along the higher ranges, both varieties going some distance for water. The Virginia deer prefer the willow-covered islands, the reedy patches, and the many plum thickets in the immediate vicinity of the river.

To reach the best hunting grounds, take Pacific Railroad to Kearney Junction, and thence to Mack's ranche, where mule teams can be obtained.

Cheyenne County—

Big Spring. Antelope, buffalo, black-tailed and white-tailed deer, very abundant ten miles north, with plenty of mountain grouse. Reached via Union Pacific Railroad. Private board $1.50 to $2; guides $2 to $3, teams $3 to $5.

Sidney. Buffalo, antelope, deer, some mountain sheep, jack rabbits, ducks, and geese. Reached via Union Pacific Railway. Hotel $1.50 to $3; teams and guides $5. For antelope, must camp out. The buffalo grounds are in the vicinity of the South Platte River. Rolling prairie and hills.

Colfax County—

Schuyler. Antelope in fair numbers, with immense numbers of pinnated grouse and quail, geese, ducks and brant. The Platte River with its tributary creeks, and the sloughs on the river bottom, are alive with all varieties of wild fowl. Pickerel are caught of fair size, and in considerable numbers. Seventy-six miles from Omaha, on the Union Pacific Railroad. Board $2, teams with driver $2 to $4. Level and rolling prairie, with little timber.

Cuming County—

Wisner is situated in the Elkhorn Valley, one of the most beautiful in the world. Horse-shoe, Deer, Swan, Goose, Pickerel, Beaver and Bull-head Lakes are from one to four miles from Wisner, and are full of fish. Wild game is also very plentiful, among which are the antelope, deer, geese, ducks, pinnated grouse and quail. The hotels are The Elkhorn Valley and the Wisner. On the Sioux City and Pacific Railroad.

Dakota County—

Jackson. Wolves, antelope, deer, jack-rabbits, geese, ducks, swans, cranes, quail and pinnated grouse. Reached via the Union Pacific Railroad, one hundred miles west of Omaha. Hotel and private board $1 to $1.50; teams with driver $2.50 to $4. R. G. Coreter, the ticket agent at the railroad station, will give full information, and act as guide. The antelope and deer are found on the hills, half a mile north from the station.

Dawson County—

Willow Island. Elk, deer, antelope and a few grouse. Reached via the Union Pacific Railroad. Private board $5 per week. Rolling prairie.

Overton. Antelope, and a few deer. The latter are found in abundance on the Loup River, thirty miles north. On the Union Pacific Railroad. Private board, $1.25; teams $5.

Plum Creek. Elk, buffalo, deer, antelope, rabbits, hares, pinnated grouse, geese, ducks, sandhill cranes, snipe and plover. Reached via the Union Pacific Railroad. Hotel $1.50, private board $5 per week; guides $2; teams $3. Timber land and rolling prairie. Excellent camping grounds.

Cozad. Buffalo, elk, antelope, deer, wild turkeys, geese, swans, ducks, and other wild fowl in great abundance. Reached via the Union Pacific Railroad. Hotel and private board, $3 to $6 per week; guides with double team, $4 to $5. For successful sport camping is necessary. The game grounds are the wooded ravines of the table lands.

Dodge County—

North Bend. Pinnated grouse, ducks and geese, with fair deer shooting. On the Union Pacific Railroad, sixty-two miles from Omaha. Hotel $1.50; team and driver $3. Prairie country.

Douglas County—

Valley, on the Union Pacific Railroad, thirty-five miles from Omaha, is an excellent point for the sportsman. There is an abundance of deer, ducks, geese, pinnated grouse, quail and snipe in the surrounding country. In the streams are bass, pickerel, and other varieties of fish. Hotel $1 per day; teams $2 to $3. The country to the north of the Platte River is prairie, to the south rolling prairie.

Omaha. Deer, wild turkeys, pinnated grouse, quail and other varieties of game are very abundant in the vicinity.

Waterloo. Pinnated and ruffed grouse, quail, snipe, geese, brant, ducks, swans, cranes, a few deer; salmon, pickerel, bass, white perch, various kinds of catfish, sturgeons, and others. Thirty-one miles from Omaha, on the Union Pacific Railroad. Hotel and private accommodations $1.50 to $2; guides $2 to $4; boats 50 cents; teams $2.50 to $4. Prairie country, rolling, with strips of timber along the Elkhorn and Platte Rivers.

On Elkhorn River and Horse Shoe Lake are black bass. Take Pacific Railroad to Elkhorn City.

Hall County—

Grand Island. For game and route see Chapman, Merrick County. Good hotels and boarding houses $2.50 to $4 per week.

Wood River. Elk are found about the Loup River, fifteen miles north; antelope and deer in limited numbers, rabbits, geese, ducks and pinnated grouse. Reached via Union Pacific Railroad. Board in private family $4 per week; teams $3 to $4. The country is rolling prairie and bluffs.

Keith County—

Ogalalla. Deer, antelope and grouse, with a few buffalo. Reached via the Union Pacific Railroad. Hotel, $1.50 per day; teams with driver $5. Country, prairie with hills, and rocky bluffs.

Alkali. Buffalo, deer, antelope, jack and brush rabbits, grouse and many varieties of water fowl; excellent and varied fishing. Reached via the Union Pacific Railroad. Private board $1; teams and ponies at reasonable rates. Hills and river bottom lands.

Kountze County—

New Helena, on the Middle Loup River, one hundred miles from Pacific Railway. Antelope and other game.

Lancaster County—

Lincoln. Excellent pinnated grouse shooting. Reached via the Atchison and Nebraska, and other railroads.

Lincoln County—

O'Fallon's. Antelope and jack-rabbits. Reached via Union Pacific Railroad. Board $5 per week; teams $3 per day. Provide for camping. Prairie and hills.

Brandy Island. Elk, mountain and red deer, antelope, jack and grey rabbits, pinnated and ruffed grouse, geese, ducks, swan, snipe, plover; buffalo fish, wall-eyed pike. Reached via Union Pacific Railroad. Private board $1; guides $2; teams $4. Camping necessary. Rolling prairie.

McPherson. Deer, ducks, geese, and pinnated grouse shooting. Reached via the Northern Pacific Railroad, two hundred and seventy eight miles from Omaha. Guides $2 per day. The town is located in the Platte Valley, with rolling prairie north and south.

Merrick County—

Chapman. Pinnated grouse, quail, geese, ducks, jack-rabbits; fish of different varieties. Reached via the Union Pacific Railroad. Private board $2.50 to $4 per week. Country, rolling prairie.

Lone Tree. Antelope, deer, and to the northwest large herds of elk. For other game, and route see Chapman. Boarding houses and hotels $2.50 to $4; teams, guides, etc.

Otoe County—

Cooper's Lake. Deer and elk are occasionally shot in the vicinity, and are abundant in the mountains thirty miles south. Ducks and rabbits in great quantities. Trout and red-horse fishing excellent. Reached via the Union Pacific Railroad. Private board $5.50 per week; boats, teams, etc. For successful hunting camp out. A. B. Hildreth, an old mountaineer, will act as guide. Rolling prairie.

Platte County—

Columbus. Deer, antelope, wild turkey, pinnated grouse, quail, geese, brant, ducks and snipe. Reached via the Union Pacific Railroad. Hotels $1.50; teams $4. Level and rolling prairie.

Richardson County—

Falls City is a favorite summer resort in this part of the country. The river affords excellent fishing and the surrounding country fine shooting. The route is via the Sioux City and Pembina Railroad from Davis Junction, a few miles west of Sioux City. The Chicago and Northwestern Railroad issues through tickets from Chicago.

Ashland. Quail, grouse, geese and ducks are found in all this section in abundance. Reached via the Burlington and Missouri River in Nebraska Railroad.

NEVADA.

Area 104,125 square miles; population 42,291. The surface of the country is rugged and very mountainous. The ranges extend north and south with intervening valleys and streams, all rich

in mineral wealth. The population is made up for the most part of miners and those engaged in kindred pursuits. The Central Pacific Railroad intersects the State from the north-east, west to the centre of the western boundary. The game is that of the Pacific slope; the fish, especially in the large lakes, are abundant and gamy.

Elko County—

Wells. Antelope, deer, sage hens, grouse, ducks, geese; trout. Take the Central Pacific Railroad. Hotel and private board $1 to $1.50; teams $5 to $8.

Carlin. Deer, geese, ducks and trout. Reached via the Central Pacific Railroad. Private board $1.50 to $2. Hunting parties usually camp. Hilly and mountainous.

Elko. Pinnated grouse, sage hens, ducks, geese, trout; deer and antelope within ten or fifteen miles. Reached via the Central Pacific Railroad. Hotels $10 per week; teams $7 to $10. Camping is necessary for good sport. Country hilly and mountainous.

Tecoma. Deer, antelope, mountain sheep, bear, rabbits, sage hens, ducks, pinnated and ruffed grouse. Reached via the Central Pacific Railroad. Hotel $1; guides $3 to $4. Camping is necessary. Mountainous country.

Eureka County—

Palisade. Ducks, pinnated grouse, sage hens; excellent trout fishing in the Humboldt River. Reached via the Central Pacific Railroad. Private board $1; teams at reasonable rates. Mountainous country.

Humboldt County—

Oreana. Antelope, mountain sheep, sage hens, ducks, geese. Reached via Central Pacific Railroad. Hotel $2, $8 to $10 per week; saddle horses $3; teams $10. Rolling prairie and mountains. The sloughs known as the Big Meadows, are good shooting grounds.

Rye Patch. Antelope, mountain sheep, deer, sage hens; trout. The fur-bearing animals are beavers, otters, minks, etc. Reached via the Central Pacific Railroad. Hotels $2, private board $1.50; guides $2 to $3. Provide camping outfit. Valley and mountain.

Winnemucca. Ducks, geese, sage hens and grouse; mountain trout. Reached via the Central Pacific Railroad. Board $1; saddle horses $2. Country mountainous and rolling.

Golconda. Many varieties of ducks, geese, sandhill cranes, jack-rabbits, cotton tails; trout. Reached via Central Pacific Railroad. Board $1; teams $7. Golconda is situated in a valley among the mountains.

Brown's, forty-six miles east of Wadsworth, on the Central Pacific Railroad. Ducks, geese, swan, snipe, with other varieties of water fowl. There are no accommodations of any kind.

Lander County—

Battle Mountain. Antelope, mountain sheep, deer, grouse, sage hens, rabbits. Reached via Central Pacific Railroad. Private board may be found, $2, but it is better to camp out. The country is mountainous.

Ormsby County—

Carson City. Ducks, geese, sage hens, mountain quail, rabbits, and two varieties of hare; trout, salmon trout, whitefish. Reached via Central Pacific Railroad to Reno, thence via Virginia and Truckee Railroad. Board $1 to $2. Parties fit out at Carson and Virginia City for expeditions to Hope Valley, the best shooting ground in the State.

Stony County—

Virginia City. See Carson, Ormsby County.

Washoe County—

Reno. Stages run daily from Reno, and from Truckee, Cal., into the Sierra Valley, a popular resort for sportsmen. Here may be found quail, grouse, deer,

ducks, rabbits, and brook trout in all the small streams in abundance. Next to Hope Valley, this affords the best shooting to be found in this State.

The best fishing is found in the Truckee River, the lake of the same name, and Pyramid Lake. The waters of the Truckee River extend from Lake Tahoe (the head of the Truckee), to Pyramid Lake, the sink thereof. It is a great resort for tourists, situated on the line between Nevada and California, in the Sierras. The Truckee River flows from its north end, and is its only outlet of importance, but the river is fed, all along its course, by mountain streams of melting snow, till it debouches in a basin, where is built Reno. The river leaves the basin, after an easterly course through it by a canon, and passing a little northerly, empties into Pyramid Lake, a large body of water within the confines of the mountains, but not quite so picturesque as Tahoe or Donner Lakes. The country around it affords excellent grazing ranges. Pyramid Lake abounds with feathered game, swan, geese, ducks, etc., the latter of several species, and is the winter quarters of the trout. As soon as the river begins to rise in the spring, they start for Tahoe in such vast schools that it is no trouble to get as many as one wishes by simply going to the river. Fish are taken any where along the river, but usually where it runs deepest and smoothest, whereas the brook trout of the east is taken from foam of cascade and rapids, and by concealed anglers. Concealment is not necessary here. The bait is thrown out as far as pole and line will cast it and let float down with the current, properly leaded to cause it to sink near the bottom, just to escape the rocks and sunken logs, and when all the line is out, is pulled up and thrown again out and up stream. The trout takes it freely, and is easily landed, not by jerking the fish out of the wet, but by playing him ashore. Some fly hooks are used, but they do not seem to be a favorite bait. Spawn or minnows are preferred. Hooks are used from number four to larger. The grab hooks are much larger. The Kirby hook is preferred to the Limerick. The lines used are the ordinary linen lines or grass lines. Cane poles, or any that are strong enough, and the longer the better, to get the bait cast out to the middle of the stream, or as near as possible in the deepest channel of the river. Those who go to the Truckee River trout-fishing will do well to be careful about their bait, if they wish to have any success. The only bait with which they can succeed at certain seasons of the year, is a worm that is found in the greasewood. This worm cuts a ring around the main stalk of the greasewood, and is easily found by observing that the tops of the greasewood bushes are dead. The trout will bite at these worms when they will touch no other kind of bait. The Piutes and a few old settlers know how to find this peculiar bait, and are successful fishermen when all others fail. The dead leaves on the tops of the greasewood bushes show where the worms are, and all that is necessary to be done is to kick over the bushes to find the bait, as the shrubs break off at the point where the worms have ringed them.

Wadsworth. Trout fishing in the Truckee River and in Pyramid Lake, eighteen miles. Humboldt Lake, forty miles, near the line of the railroad, is a good shooting ground for ducks, geese, swans, curlew, snipe, etc., though owing to the absence of cover, the approach to the game is difficult. Mountain quail, sage hens and grouse are found in the mountains. Eight miles west of Wadsworth, with a few mountain sheep and black-tailed deer, jack rabbits abound in every direction. Good trout fishing in Independence Lake. Reached via the Central Pacific Railroad.

Washoe City. Deer, bears, grouse, sage hens, mountain quail; excellent fishing in Ophir Creek, and Washoe and Marlette Lakes. Reached via Virginia and Truckee Railway. Board $7 per week. Country very mountainous and rocky; the foot-hills covered with sage brush.

Franktown. Geese, ducks, grouse, quail, snipe, rabbits, hares, a few deer. Reached via the Virginia and Truckee Railroad. Hotel $1. Mountainous country.

Verdi. Deer, rabbit, grouse, quail; trout in the Truckee River. Reached via the Central Pacific Railroad. Private accommodations $1; guides $3. A mountain country.

White Pine County—

Hamilton. Deer, wild geese, ducks, pinnated grouse, snipe. Good trout fishing. Board $3. Mountainous country.

NEW HAMPSHIRE.

Area 9,280 square miles; population 318,300. The State is rugged and includes among its mountain systems, the White Mountains, the highest of the Eastern and North-eastern States. The sea coast region, embracing a strip extending twenty or thirty miles inland, forms an exception to the general description of the State, this section being low and marshy. The north-eastern part of the State is covered with extensive and dense forests, interspersed with numerous lakes and partakes of the wilderness character of the neighboring State of Maine. All this region is a grand hunting ground for the larger and wilder kinds of New England game, while the lakes are well stocked with fish. Aside from this region, the facilities of travel are excellent, and the hotel and other accommodations generally good.

Belknap County—

Centre Harbor. Pickerel are caught in that part of Lake Winnipisiogee which is known as the Basin. Reached via Boston, Concord and Montreal Railroad to Foggs or Hederness, thence stage. Hotel, boats, etc.

Meredith. Wakeman Lake contains black bass. Reached via the Boston, Concord and Montreal Railroad.

Laconia. Woodcock, ruffed grouse and plover, ducks, and other game. Reached via the Boston, Concord and Montreal Railroad.

Lake Winnipisiogee. The waters of this lake are fine fishing grounds for different kinds of fish, with game birds on the shores and upland plover on the islands. Reached via Boston and Concord Railroad to *Weir's*, whence other parts of the lake are accessible by steamer; or via Boston and Maine Railroad to *Alton Bay.*

Carroll County—

Jackson. In the Wild River, with the tributary streams, is fine trouting. Secure "Jock" Davis as your guide. Reached from the Eastern Railroad.

The Big Intervale, near the town of Albany, is a good deer country. Take Eastern Railroad to Ossipee.

Madison. Bear hunting on Mt. Chocorua, five miles from Madison, and partridge shooting in the vicinity. Take the Eastern Railroad. Piper is an old hunter who lives at the foot of the mountain and will act as guide.

Sandwich. Bears are found on the mountains. Take the Eastern Railroad to West Ossipee and from there drive over.

West Ossipee. There are trout in Drake's Brook, which runs near the base of the Ossipee Mountain. Reached via the Eastern Railroad.

Moultonborough. Long, and Red Hill Ponds contain black bass.

Wolfborough. Ruffed grouse shooting. Lake Winnipisiogee offers many inducements to the camper out on the many beautiful islands which dot its surface. Wolfborough is a good *point d'appui*, possessing fine hotels and boarding houses. The lake abounds in fish. Take the Eastern Railroad.

South Tamworth. Ruffed grouse. Bears numerous on Chocorua Mount. Foxes numerous. Good duck shooting on Ossipee Lake.

North Conway. Good fishing in the streams and lakes in the vicinity.

Cheshire County—

Munsonville. A pond in the vicinity has been stocked with black bass.

Keene. The lakes and ponds in the vicinity abound in pickerel and perch; but few have trout, which, however, are found in nearly every creek. Wilson's Pond has black bass. Two favorite lakes are Monadnock, at the foot of Mt. Monadnock, twelve miles east, and Spofford ten miles west. The former contains trout, the latter very fine pickerel. The game of the surrounding country includes ruffed grouse, ducks, plover, foxes, minks, rabbits, raccoons and grey squirrels.

For these the sportsman must take his own dog, as no good ones are to be found here. Keene is on the Cheshire Railroad. A summer resort.

Harrisville. A pond near the town contains black bass.

Stoddard. In Long Pond are found pickerel and perch. Reached via the Cheshire Railroad to Walpole, thence by drive; or via Concord and Claremont Railroad to Hillsboro, thence stage.

Fitzwilliam. White hares and foxes. Cheshire Railroad from Boston.

Coos County—

Gorham. The mountain streams and brooks in the vicinity afford excellent trout fishing. Reached via the Grand Trunk Railroad.

The Megalloway River. Good trout fishing in this stream, in its source, Lake Parmachene, and in the small tributary streams. Take Grand Trunk road to Stratford, stage to Colebrook, thence wagon to Erroll's Falls on the river.

The lakes on the Upper Androscoggin, which are reached only by canoe, are the centres of fine trout fishing and ruffed grouse, deer, and bear shooting. Take stage to Erroll's Falls, and canoe from there.

The Connecticut Lakes and adjacent waters, at the source of the Connecticut River. Game of various kinds is abundant in this region. Moose are numerous in some localities, and deer without number range the hillsides. Some of their runs are beaten hard. The streams are full of trout. Also otter, mink and sable are in such numbers that the trapper gets well paid for his time and labor. The lumbering business has not been carried on in this locality, consequently it is the paradise of hunters and trappers.

To reach the lakes leave Grand Trunk Railroad at Island Pond, Vermont, and take the wilderness road to First Lake, Second Lake, and so on; or leave the Grand Trunk Railroad at Stratford, stage to Colebrook, wagon to Erroll's Falls, boat up river to Duckee's Landing on the Megalloway River, and thence up stream to Parmachene Lake. From thence a portage over the Connecticut lakes. Second Lake is the largest, being about three miles long by a mile wide. It lies four miles from First Lake. There is a good bark shanty there. Third Lake is still two or three miles further. Besides the Connecticut Lakes, there is the Unknown Pond, near Stewartstown, at the head of Diamond River, which empties into the Megalloway, reached by wagon from Colebrook. These waters are filled with trout.

Grafton County—

Plymouth. Good trout streams, but fish of inferior size. Reached via the Boston, Concord and Montreal Railroad.

Franconia. There are black bass in Echo Lake.

Littleton. Black bass in Partridge Pond. Reached via the Boston, Concord and Montreal Railroad.

Rumney. Stinson's Pond contains black bass. Route as above.

Hillsborough County—

Hillsborough. Loon Pond contains black bass.

Manchester. Good black bass fishing in the Massabesic, Dorr's, Nutt's and other neighboring ponds. Reached via the Concord, the Concord and Portsmouth and other railroads.

Antrim. Black bass in Gregg's Pond.

Amherst. Black bass in Baboosic Lake. Reached via the Boston, Lowell and Nashua Railroad.

Merrimack County—

Warner. Black bass are caught in Pleasant Pond. Route as below.

Bradford. Good bear fishing in the vicinity. Reached via the Concord and Claremont Railroad.

East Andover. Black bass in Highland Lake. Reached via the Northern New Hampshire Railroad.

Sutton. Squirrels, partridges. Good black bass fishing in the Blaisdell Pond.

London. Black bass are caught in Hat Hole Pond.

Webster. Long Pond was stocked in '71 with black bass.

Canterbury. Black bass in Clough's Pond.

Franklin. Black bass and pickerel in Webster Lake. Reached via Northern New Hampshire Railroad.

Concord. Black bass in Pumacook Lake. Reached by rail.

Rockingham County—

Hampton. Robin, snipe, curlew, and other shooting. Reached via the Eastern Massachusetts Railroad, forty-seven miles from Boston.

Smelts are taken in great numbers at the proper season in Great Bay. Take the Eastern Railroad.

Rye. Woodcock, partridges, snipe, yellow legs, plover, loon, coots. Reached by drive or rail from Portsmouth.

Deny. Beaver Pond furnishes excellent black bass fishing. Reached via the Manchester and Lawrence Railroad.

Deerfield. Pleasant Pond has been stocked with black bass.

Northwood. Suncook Pond affords black bass fishing.

Stafford County—

Long Pond, in Stafford, is well stocked with perch and pickerel.

Sullivan County—

Sunapee. Sunapee Lake and Sugar River, from Sunapee to Newport, are well stocked with black bass. There is fine squirrel and other hunting in the vicinity. Reached via the Concord and Claremont Railroad to Newbury or Newport.

NEW JERSEY.

Area 8,320 square miles; population 906,096. The northern half of the State is traversed by three mountain ranges, the southern portion is made up of a plain extending through the centre and gently sloping on either side to the Atlantic and the Delaware Bay. There are now and then in this section of the State, a few hills, but they are all of inconsiderable size. The coast line of New Jersey is indented by numerous bays, and lined with a great number of islands. These inlets are all famous for the variety and numbers of their fish and wild fowl. The species of fish are numbered by hundreds, and include many of the salt water kind most sought by sportsmen. The fishing and shooting grounds are well provided with numerous means of access, and at all the better known resorts are comfortable hotels with every convenience for the sportsman. The Southern counties of the State are under the jurisdiction of the West Jersey Game Protecting Society, and under its auspicies have been well stocked with game and fish during the past few years. Black bass, quail, pinnated grouse, etc.

Atlantic County—

Somers' Point and its Harbor are favorite localities for duck and snipe shooting, and for shore shooting of every kind, as well as for fishing. Ruffed grouse, and an occasional deer and bear in the adjacent wilds. A strip of beach, seven miles in length called Peck's Island, separates the bay from the sea and forms capital feeding grounds for curlew, marlin, willet, robin, snipe, etc. The months of August and September are the best for snipe shooting. In the fall and winter months wild ducks and geese visit the harbor in large numbers. Good hotel accommodations. Captian Japheth Townsend keeps a first rate country inn for sportsmen. He has a good yacht and plenty of boats. Charges $10 a week. His house is five miles from Absecon, on the Camden and Atlantic Railroad. Deer are abundant in this county in certain districts. Take the Camden and Atlantic

Railroad. Eplings, six miles from Egg Harbor, is good ground for jack or Wilson's snipe. Rough accommodations at farm house.

Atlantic City. Robin snipe, bull-head plover, ducks and drum fish, flounders, sheepshead, and weakfish. Reached via the New Jersey Southern Railroad. Bagmen can be procured. Shauffler's Hotel is the headquarters for sportsmen.

Bergen County—

Hackensack. On the meadows, rail and snipe shooting is good. For striped bass, fish off the bridges with bamboo trolling rod, one hundred and fifty feet line at least, float, shrimp, shedder, or minnow bait, small sinker to keep hook under the tide; reel, of course. The bridge at "English Neighborhood," Northern Railroad of N. J., is a favorite stand. Rabbits and quail abound there. Reached via the Erie, or the New Jersey Midland Railroad, thirteen miles from Jersey City.

Tenafly. Good squirrel shooting, woodcock, quail, ruffed grouse, wood duck, jack snipe, rail and other game birds furnish excellent sport. Reached via the Northern New Jersey Railroad, sixteen miles from Jersey City.

Englewood. Good snipe shooting. Reached as above, fourteen miles from Jersey City.

Paskack, on the Hackensack Branch of the Erie Railroad, is an excellent place for New Yorkers to visit, when but one day can be spared from business. Good squirrel and rabbit shooting, with other sport, is to be found here.

Burlington County—

Beverly. Across the bar are skip jacks, blue fish, Spanish mackerel and other varieties, all of which afford good sport. Reached via the Amboy Division of the Pennsylvania Railroad. There are hotel accommodations.

Moorestown. Quail and woodcock. Reached as above to Hartford, thence stage two miles.

Delanco. Fine rail shooting. Reached via the Camden and Amboy Railroad.

Tuckerton, on Little Egg Harbor, offers many attractions to the sportsman and angler. Duck and brant shooting is very fine in the fall and spring, and also for geese in the spring in Tuckerton Bay.

The ducks include the black head, widgeon, black, sprig-tail, red head, broad bill. This is a famous place for bluefishing. Go via the Tuckerton Railroad. The Everett and Carlton Houses are good hotels. Terms $2 per day, $10 per week.

Mount Holly. Trout in Rancocas Creek. Reached via the Pennsylvania Railroad. Two hotels.

Camden County—

Gloucester City. White and yellow perch of great weight are abundant in the Rancocas, Pensancon, Newton and Timber Creeks. Take the West Jersey Railroad. Good hotels both at Gloucester and Bridesburg.

Cape May County—

Townsend Inlet, seventeen miles from Cape May. Dowitchers, calico backs, grey backs, black breasts, bull-headed plover, robin snipe, yellow legs, ducks. Reached by sail-boat from Cape May, or by wagon from North Dennysville, on the West Jersey Railroad.

Cape May. Woodcock, curlew, redhead and blackhead ducks, plover, Canada geese, sea pigeons; blue fish, "Cape May goody," spot, blackfish, drum, and other varieties of birds and fish. Reached via the West Jersey Railroad. Boats may be hired at Schellinger's Landing.

Seaville. Woodcock, bay birds, willets, and other varieties of wild fowl, furnish excellent sport. The fishing is good. Reached via the West Jersey Railroad.

Tuckahoe. Quail, woodcock, snipe, bay birds, pheasants, squirrels, rabbits, etc., abound on the borders of the village. Deer are quite plenty in the swamps and thick uplands. Reached via the West Jersey Railroad to Point Elizabeth, thence by stage or hired conveyance. Busby's Star Tavern.

The Tuckahoe River, which winds its crooked course between Atlantic and Cape May counties, and pours its muddy waters into Great Egg Harbor Bay, contains not a single spear of wild rice, from its source to its mouth, while all the tributary streams that help swell the volume of its waters, above where the flood tides are salt, are filled with this reed. Rail birds, as every gunner knows, delight in the seeds and tender shoots of the wild rice, and where it is plentiful,

congregate in vast numbers, and grow enormously fat. The marshes on the margins of the tributary streams of the Tuckahoe, consequently are favorite feeding grounds of the rail.

Cumberland County—

Cohansey. Fine bags of jack snipe are made on the Cohansey Creek Meadows. Take the West Jersey Railroad.

Essex County—

Montclair. The Big Piece and the Little Piece shooting grounds are eight miles distant. Reached via the Delaware, Lackawanna and Western, or the Montclair and Greenwood Lake Railroad. (See Pine Brook.)

Newark. Duck and goose shooting on Newark Bay, with Wilson and jack snipe. Reached via the Pennsylvania Railroad.

Gloucester County—

Malaga. Deer in the vicinity; quail and partridge afford fine sport. Reached via the West Jersey Railroad.

Westville, five miles from Camden, on the West Jersey Railroad, is at the mouth of Timber Creek, a good trout stream.

Hunterdon County—

Bull's Island. Quail, squirrels, and excellent black bass fishing in the Delaware River. Reached via the Belvidere Branch of the Pennsylvania Railroad. Board at reasonable rates; teams $3 to $5 per day.

Lambertville, on the Delaware River, is a good place for yellow perch fishing. Route as above.

Middlesex County—

Perth Amboy. Weakfish and other fishing affords good sport here. Take Staten Island boat to Third Landing, cars to Tottenville, ferry to Perth Amboy; fare, whole distance, twenty-five cents. Boats and bait at Tottenville or Perth Amboy.

Cheese Creek, a few miles from Perth Amboy, is an excellent place for sheepshead, bluefish, striped bass, weakfish, porgies; bait with crabs and clams. The shooting here is for mallards, black ducks, sprig-tails, bay birds, jack snipe, and other wild fowl.

South Amboy. Quail, ruffed grouse and a few woodcock. Reached via the Amboy Division of the Pennsylvania Railroad.

Spotswood and Old Bridge. Rabbit and quail shooting. Route as above.

New Brunswick. Snipe on the meadows, and some quail. Reached via the New York Division of the Pennsylvania Railroad. Board at the George Street House, at about $2 per day.

Monmouth County—

Marlborough. Woodcock, doves, pigeons, plover and snipe. Reached via drive from Freehold, on the Freehold and Jamesburg Railroad.

Shrewsbury. Excellent quail shooting in the vicinity. The route is via the New Jersey Southern Railroad.

Red Bank. In the Shrewsbury River are bluefish, weakfish, kingfish, and sheepshead. In the vicinity, snipe, woodcock and quail. Red Bank, on the Shrewsbury River, is at the head of steamboat navigation, or is reached via the New Jersey Southern. The hotels on the Shrewsbury River are Thompson's Pavilion, at the Highlands; Jenkinson's, at the same place; the Fowler House, at Oceanic, and the Tontine, at Fair Haven. The hotel of Red Bank, is the Globe.

Matawan. Good rabbit shooting. Take boat to Keyport, thence by wagon.

Holmdel. Rabbit and quail shooting in the vicinity. Reached by drive from Red Bank.

Ocean Beach. Good snipe and bay bird shooting. Reached via New Jersey Southern Railroad. Comfortable hotel accommodations.

Squan Beach is a good locality for beach birds and wild fowl. Take the Freehold and Jamesburg Railroad.

Morris County—

Hanover. Jack snipe, black ducks, teal, canvas-backs, wood ducks, wid-

geons, woodcock, quail, pigeons, rabbits, muskrats in great plenty. Reached via the New Jersey Southern Railroad.

Hanover Neck. Woodcock and snipe in quantity. Address A. T. Tappan at that place. He has dogs.

Budd's Lake, or *Lake Swartswood.* These waters are the abode of many fish including pickerel of large size. Ruffed grouse, quail and hares in the vicinity. Reached via the Delaware, Lackawanna and Western Railroad to Stanhope whence stages run to the lake two and one-half miles distant. The Forest House, $3 per day, $15 to $21 per week.

Pine Brook. The Pine Brook Hotel is a convenient headquarters for sportsmen shooting on the well known Big Piece and Little Piece hunting grounds. Wilson snipe afford the best sport. Black ducks, and woodcock are also found.

For six weeks in the spring, and for the same length of time in the fall, the meadows are covered with shooters, and oftentimes a hunter to a bird. In the fall flight it frequently happens that large numbers stop to feed on the soft and muddy flats and remain a day or two. Abundance of food soon renders them fat and luscious, and although the birds first stop only to rest, they find so good cover and so fine feed, they hesitate about continuing their flight and remain for weeks. Not easy of access to pot-hunters, the shooting is as fine now as it was forty years ago, and the fortunate hunter who happens to reach the meadows while the flight is at its height, finds most famous sport. It is no uncommon thing to secure a bag of from thirty to fifty birds. Lying midway between Paterson and Newark, it is still secluded ground, for both the Big and Little Pieces are a dozen miles away from any depot house, and only those who possess or can command a horse and wagon or excellent pedestrian accommodation, ever reach these meadows.

The Big Piece stretches out, a broad level meadow for miles, which in seasons of heavy rains is submerged.

Lake Hopatcong, or Brookland Pond, contains large sized pickerel, with perch and salmon trout. Reached via Delaware, Lackawanna and Western Railroad to Drakesville, thence stage four miles. There are several good hotels at the lake, with boats, etc. Byram's Cove is a favorite fishing ground, and Bishop's Rock an excellent camping place.

Hopatcong. There are good hotels on the lake shore at Hopatcong. Take Morris and Essex Railroad to Drakesville. Hotel rates reasonable. Fair pickerel fishing in season. They are taken with Buel spinners, trolling.

Newfoundland. Trout are abundant in the streams of the Bear Foot Mountains. Reached via the New Jersey Midland Railroad.

Ocean County—

Barnegat Inlet. Weakfish, kingfish, striped bass, sea bass, blackfish, sheepshead, bluefish, flounders, barb; geese, brant, black ducks, sprig-tail, broad bills, bay snipe and other fishing and shooting. Kinsey's Ashley House is a favorite resort of sportsmen.

Barnegat Bay. Fine duck and snipe shooting at Chadwick's gunning house. Any one who goes between the 25th of August and 20th of September, will find the shooting all that can be desired. Fare by Pennsylvania Central Railroad, excursion ticket, good for one month, from New York to Squan, $3; stage to Moxon's, dinner and boat up to Chadwick's, $2.50; board, $2 per day.

Forked River. Weakfish, striped bass, sheepshead, bluefish, kingfish, pickerel in the river, geese, ducks, brant, woodcock, quail, partridges, surf, rock and bay snipe, yellow legs, curlew, dowitch, plover, willets, marlin, robin. Reached via the the New Jersey Southern Railroad. The Carmen House, E. H. Frame proprietor, is patronized by sportsmen, and there boats, guides, etc., can be found.

Barnegat. Quail, curlew, yellow legs, bay snipe, willets, etc., in abundance. Bluefish, kingfish or barb, sheepshead, weakfish, striped bass, sea bass, black fish. In its season, Barnegat Bay is one of the best ducking points known on the coast, being filled with ducks, geese, and brant, and there are innumerable good points and thoroughfares where they can be stooled. Quail, jack snipe, curlew, yellow legs, bay snipe, willets. Selection can be made of a dozen experienced gunners, who are provided with yachts, sneakboats, and decoys. From its accessibility Barnegat Bay ought to be a preferred resort of sportsmen from New York to Philadelphia. The Bay can be reached by Southern Railroad of New Jersey, or Pennsylvania Central via Trenton.

Rumson. Woodcock, quail, plover, ducks, snipe, rabbits.

Point Pleasant. Snipe, willets, sickle bills, curlew, marlins, kreikers and yel-

low legs. To reach this place, take the Long Branch boat to Sandy Hook, cars to Farmingdale, where a branch meets the trains for Squan village, and Charles Moxon's stage will take guests direct to the house; or take Pennsylvania Railroad to Monmouth Junction, and then the Squan village train. By the former route you can leave New York at four P. M. and the latter at two P. M. It takes about three hours and a half to get to John E. Loveland's, Point Pleasant.

West Creek. Curlew and brown backs. Reached via the Tuckerton Railroad.

Waretown. Curlew and brown backs on the meadows, yellow legs, jack snipe, meadow larks. Sheepshead, rail, quail, ducks; weakfish, blackfish, bass, bluefish. Reached as above.

Tom's River. Bay snipe, curlew, yellow legs, ducks, etc., are found in the vicinity. Take the New Jersey Southern Railroad. Hotels; Ocean and Magnolia Houses.

Beach Haven. A narrow strip of sandy and meadow land, twenty miles long, and from a half mile to a mile wide, runs from Barnegat Inlet to Little Egg Harbor Inlet. Between it and the main land on the west, is Tuckerton Bay, in some places seven miles wide; on the east side is the Atlantic Ocean, and directly opposite Tuckerton a part of this land is called Beach Haven.

The shooting and fishing are excellent. Ducks, willet, marlin, curlew, large and small yellow legs, black breasted plovers, dowitchers, robins, and the various kinds of wading birds are to be found at the proper time in great numbers on the bars, meadows and islands in the bay; and the larger rail are quite numerous on the salt marshes. Rabbits are found on the islands and quail on the mainland. Sheepshead are found in large numbers.

Weakfish are also plenty; and sea bass and striped bass fishing is equally good. Good yachts for sailing with competent seamen and fishermen and gunners are always to be had at reasonable charges.

There are several good hotels. The Parry House, the Bay View House and others, the prices ranging from $3 per day to $10 and $14 per week.

The most direct route is by the New Jersey Southern Railroad from pier 8, North River, by way of Sandy Hook and Long Branch. At Whitings you connect with the Tuckerton Railroad. At Tuckerton you take the steamboat across the bay to Beach Haven, affording a most delightful sail of seven miles.

The surf bathing is very fine, and the still water bathing equally good. The facilities Beach Haven has for yachting are excellent, there being a stretch from inlet to inlet of twenty miles, and across from shore to shore of from six to seven miles. For those who prefer the ocean to sail on, it is easily reached by going out through Little Egg Harbor Inlet, which is a short sail; also by a continuous stretch of eighteen miles. Atlantic City can be visited without going outside.

Passaic County—

Echo Lake is a fine locality for pickerel fishing. Take the Midland Railroad to Charlottesburg, thence six miles by stage. A good hotel is kept by Mr. Wickham.

Salem County—

Salem. The extensive meadows here afford fine jack snipe shooting. Reached via the West Jersey Railroad.

Pennsville, on the Delaware River, midway between Wilmington and New Castle, Delaware, is a famous place for all varieties of marsh ducks. Captain Read and Captain Kidd keep good hotels. Reached via Philadelphia and Reading Railroad to Catawissa Junction, thence via Muncy Creek Railway.

Sussex County—

Deckertown. In the vicinity are found pheasants, quail, woodcock and rabbits. Reached via the New Jersey Midland Railway.

Newton furnishes good ruffed grouse shooting. Reached via the Sussex Railroad.

Keene Flats. Good trout fishing.

Vernon. In Lake Wawayanda are fine lake bass. Go via the Sussex Railroad to Newton, thence wagon to Vernon, where there is a fine hotel. Permission to fish in the lake must be obtained of Mr. Hunt, who lives near the lake.

Union County—

Summit Lake contains black bass, perch, pickerel, etc. Reached via the

Central Railroad, twenty one and three fourths miles from New York City. A good house called the Summit House.

Plainfield. Good quail shooting in the neighborhood. Reached via the New Jersey Central Railroad.

Warren County—

In the Delaware River at the first island below the mouth of the Pohatcong, near the Belvidere Railroad, shad can be taken with a bait made of Irish moss, gluten of wheat flour, oyster juice, fibrine of bullock's blood, and powdered sulphate of barytes. Make into a paste, dry with gentle heat, and grind up into fragments as coarse as Dupont's ducking powder. Cover the hooks with this preparation in its moist state, and let it dry on, so that in dissolving, it may adhere for a long time. Use a rod, three hooks on snoods dyed a brownish green color, and a float. The night before you intend to fish, sift a pint of the preparation into the water at the head of the eddy. The barytes will cause it to sink to the bottom.

Shad will not take the fly here.

Belvidere. Quail, woodcock, ruffed grouse, jack snipe, black bass, rock fish, perch, trout and pickerel. The fishing waters are the Delaware River, Pequest Creek and Green's pond, four miles distant. Reached via the New York and Belvidere Division of the Pennsylvania Railroad. Hotel $2 per day; boats 50 cents per day.

Bridgeville. Some excellent trouting streams. Reached via the Delaware, Lackawanna and Western Railroad.

NEW MEXICO.

New Mexico comprises an area of 121,201 square miles, and is the second most populous Territory in the Union. The surface of the country consists, for the most part, of elevated and level plateaus, which are traversed by several lofty and densely wooded mountain ranges, and occasionally interspersed with fertile valleys. The greater portions of the entire territory, more noticeably the Llano Estacado, or Staked Plains of the south-east, are occupied by vast sterile plains, devoid of trees and all other vegetation. The population is principally of Mexican descent, speaking the Spanish language and preserving the characteristics of that race. Many portions of the territory also are subject to the incursions of the Apaches and other tribes of hostile Indians. From these facts it will be seen that, for the sportsman, New Mexico has few attractions. Although the larger western game, such as deer, antelope, sheep, elk, bears, cougars, etc., and ducks, geese, sage hens and pinnated grouse abound in sufficient quantities to afford fair shooting, yet the difficulty and danger of travel here, and the proximity of other and more inviting fields, will deter the pleasure-seeker from penetrating far beyond its borders.

NEW YORK.

New York embraces an area of 47,000 square miles and has a population of 4,705,208.

The eastern and north-eastern sections are mountainous, the central portion rolling, and the western part consists of broad plains and fertile river valleys. The surface of the State is further diversified by a noble river system and by many picturesque lakes, most of them navigable for steamers. The steamboat, railroad and highway communication is, as a rule, very perfect, and the hotel system generally complete. Though early settled, the State still affords, especially in its wilder portions, abundant sport for the hunter and angler. The mountains are the haunts of large game; the Atlantic coast, and the inland lakes are excellent wild fowl shooting grounds, and the salt water and fresh water fishing comprises great variety. The north-eastern counties, known as the Adirondack region, have acquired a national celebrity for their wild beauty of scenery and their many inducements to the seeker of recreation and sport.

The Adirondack Region of Northern New York, comprising an area of seventy-five miles square, is usually divided into nine sections: John Brown's Tract, extending across Herkimer and into Hamilton County on the east, and Lewis County on the west; the Oswegatchie and Grass River Regions, which are included in the south-eastern portion of St. Lawrence County; the Chateaugay Woods, occupying the central part of Franklin County and the south-western portion of Clinton County; the St. Regis Woods, lying in Franklin County; the Saranac Region, embracing the southern portion of Franklin County, the southern corner of St. Lawrence County, and the northern borders of Hamilton County; the Adirondack and Hudson River Regions, comprising nearly the whole of Essex County with the northern portion of Warren County; the Racquette and Long Lake Regions make up the northern half of Hamilton County; the Garoga Lake Region, included in the northern part of Fulton County; the Lakes Pleasant and Piseco Regions included in the southern half of Hamilton County.

For camping in the Adirondacks, full outfits may generally be secured at the principal points of entry into the Wilderness. Guides are necessary, and reliable men are always to be procured ($2.50 to $3 per day). They furnish boat, axe, etc. Boats may be hired for 50 cts. per day. The expenses of living in the woods need not exceed $2 per man each day

There are eight routes which may be designated as the principal entries into the different sections of the Wilderness: *First*—From the south-west, via Boonville, on the Utica and Black River Railroad, a wagon road leads into the John Brown Tract to Arnold's

old sporting house, thence a navigable watercourse to Racquette, whence a continuous net-work of lakes and streams renders accessible the north-western limits of the Adirondacks. This route traverses a country full of game, in which, by going a little aside from the more beaten line of travel, the sportsman will find successful hunting and fishing.

Second.—Lowville and Carthage, each on the Utica and Black River Railroad, are points of entry from the West. Wagon roads from these villages converge at Lake Francis, and thence by land and water there is a route to Beach's Lake, twenty-two miles, and Racquette Lake, nine miles farther.

Third.—From the North via Potsdam there is a route via Colton, McEwen's on the Racquette River, Haw's, the Moosehead still water, and Racquette Lake, to Grave's Lodge, on Big Tupper Lake, whence all parts of the Wilderness are accessible by boat. Excellent hunting and fishing are to be had.

Fourth.—Malone is a starting point for entering the Wilderness from the North. It is reached via the Central Vermont Railroad. The route is by regular stage via Chazy and Chateaugay Lakes, both worthy of the sportsman's attention, and the east branch of the St. Regis River to Meacham Pond, and thence via Osgood's Pond to Paul Smith's, on the lower St. Regis Lake. This is the best starting point for all parts of the interior Wilderness. A good wagon road leads from Malone to Martin's, a well known hotel on the Lower Saranac.

Fifth.—Plattsburg, on Lake Champlain and on the Delaware and Hudson Canal Company's Railroad, is a point of entry from the North-east. The route is via rail to Ausable Station, thence covered coaches to Paul Smith's and Martin's. From Port Kent a stage route runs to Keeseville, thence to Ausable Station, and thence as before.

Martin's, on the Lower Saranac Lake, the pioneer hotel of the Wilderness, has grown from a small log cabin, to be the largest and most commodious hotel in the woods, complete with every convenience, and with a table of the best. Many ladies board here, preferring to do so, to going off to camp with their husbands. Board is fourteen dollars per week, two-fifty per day. Martin furnishes supplies for the camp, every thing necessary and complete. The guides are all independent, and command three dollars per day and found. They furnish a boat and hound, and carry a rifle. The expense of a guide, and the average expense of cost of living while in camp, will amount to four dollars per day, (three dollars for guide, and fifty cents a piece for self and guide,) so a couple of weeks will cost about fifty-six dollars, while in camp.

Sixth.—From the East, the heart of the Wilderness may be reached by routes starting from Westport, or Crown Point on Lake

Champlain. The route from Westport via Elizabethtown is the shortest from Lake Champlain to the Saranac Region.

Seventh.—From Little Falls and Herkimer, stations on the New York Central Railroad, good wagon roads to Round, Pleasant and Piseco Lakes, the distance to the latter being fifty miles.

Eighth.—Via the Adirondack Railroad to Riverside or North Creek, whence stage and boat communication extends to Blue Mountain Lake, Schroon Lake and other points.

Trenton Falls and *Prospect*, stations on the Black River Railroad, with good hotels, are excellent initial points for those who do not wish to penetrate far into the wilds. Within short distances and accessible by good roads, or well known routes, are Giles Beecraft's and Ed. Wilkinson's sporting houses, which are headquarters for the shooting and fishing of the region. Boarding accommodations, with guides, etc., are to be had there. The principal deer hunting and trout fishing resorts reached from Trenton Falls and Prospect are Canada and Metcalf Creeks, Snag, Little Rock, Little Bear, Twin Rock, Big Rock, Pine, G., Morehouse, Joe's, and North Reservoir and South Reservoir Lakes.

Alder Creek Station, on the Black River Railroad, is a starting point for White Lake, the Woodhull Chain, Chub, and Bisby Lakes, Moose River and the Old Forge, all of which are localities more or less famed for their sporting resources.

Boonville (see above) has good hotels, the Hurlburt House being famous among Adirondack visitors for its comfortable accommodations and excellent fare. At the village stores all needed outfit for a life in the woods may be procured. Nick's Lake, the Indian Spring Hole and numerous other resorts in the vicinity of Arnold's, well known to the guides, furnish abundant reward for the sportsman and angler. The Old Forge has a well kept hostelry, with all facilities for sportsmen.

By going aside from the main route from Boonville to Racquette Lake, excursions may be made via First Lake to Little Moose Lake, famous for the abundance and flavor of its trout, and to the South Branch of Moose River; via Fourth Lake to Big Moose Lake, where can be found the best June trouting in the woods, with excellent deer shooting, and to Moose and Cascade Lakes, noted for their fishing. At Fifth and Sixth Lakes deer are to be found. From Eighth Lake, water communication is had with Eagle Lakes and innumerable smaller lakes lying in the surrounding forest, all of which afford the best of shooting and angling.

Lowville (see above) has hotels where sportsmen will find comfortable quarters. Number Four may be reached by two routes from this point. The Fenton House at No. 4, is much resorted to by Adirondack visitors. This angler's home accommodates fifty people. It is pleasantly situated on a plateau surrounded at first by valleys, and beyond by long ranges of mountains, which are seen

stretching their outlines in the distance, at from twelve to twenty miles to the north, east and south. Half a mile to the north is Beaver Lake, which is a mile and a quarter long, about one-third of a mile wide and forty feet deep in its deepest part; and through which the Beaver River flows. This lake has been stocked with salmon trout. Sunday Creek, Slough Brook and Alder Creek, all good trout streams, empty their pure waters into the lake or river near by. Up the river to the Stillwater, twelve miles by the windings of the stream, there are nineteen distinct falls and rapids; some of the larger falls being from thirty to forty feet in height with good fishing all along the stream. This part of the river can be descended in a boat, with a skilful guide, by carrying around the heavy falls and lower rapids about a mile. One and a half miles to the south of Fenton's by road and trail is Francis' Lake, a pleasant sheet of water one and a half miles long, more noted for deer than for trout. There are any number of streams, ponds, and lakes in the neighborhood, where speckled trout can be caught by starting from the house in the morning and returning the same night, but if one prefers to stay longer, new trips can be enjoyed without number. A short day's trip down the Beaver River will take one over a succession of rapids and falls to the noted Eagle Falls —a delightful trip, which can hardly be excelled.

Although the wilderness bordering the Beaver River is not marked by that variety of scenery which is characteristic of the more northerly portions of the forest, the game is more abundant and the fishing better. The Beaver drains a large extent of territory, including thirty or forty ponds and lakes, some of the latter of which are of considerable size. Smith's Lake, too, near its head waters, is one of the most charming lakes to be found in the wilderness, and its clear waters swarm with speckled and salmon trout. Ten years ago few parties penetrated to its shores, but now few go in who fail to reach them. From Smith's Lake to the Racquette, the distance is about twenty miles. Beaver Lake and Clear Pond afford good deer shooting, and Crooked and Gull Lakes have excellent trout fishing. From Fenton's deer hunters and trout anglers go to Francis Lake, the Mashier Ponds, and by longer journeys to Loon Lake.

Loon Lake, one of the head waters of the west branch of the Saranac River, and reached also by the main road from Malone, is three miles long, and has two small inlets. By addressing L. L. Smith, of Hunter's Home, Merrillville P. O., Franklin County, all needed information can be obtained. The surroundings are necessarily wild, but Rock Shanty, a well known shelter, is within twenty rods of its shores. Best time in June. At Woods Lake, ducks are abundant. Twitchell's Lake is little visited, and is consequently a good game ground, the Red Horse Chain, Crooked and Smith's Lakes, and many others, all reached from No. 4, furnish

the best of sport. From Smith's Lake there are three routes to the Tupper Lakes passing through some of the best hunting and fishing districts of the Brown Tract. The Oswegatchie fishing grounds are reached from Lowville by good roads, traversing a region in which deer and trout are plenty.

Carthage, Brandreth's Lake and Schroon River are reached from here.

De Kalb Junction is within easy access of numerous points for trout fishing and deer shooting, and is connected by stage with Cranberry Lake, a noted place for trout. There are in the vicinity many other lakes with a great many streams, in all of which the angler will always find good sport.

Potsdam is within twenty miles of excellent hunting and fishing, and is a starting point for many famous game regions.

Massena Springs, reached by the St. Lawrence River and stage, is an initial point for bass, pickerel, mascalonge and white fishing. These fish are found here in great abundance. The hotels are fine, and the expenses moderate.

Moira, on the Central Vermont Railroad, has connections with the St. Regis River and other localities affording excellent sport.

Malone. Among the numerous resorts of sportsmen there are few more easily accessible, or which afford better sport than the Salmon River, above what is known as the "State Dam." Here within thirteen miles of Malone, is a stream which, notwithstanding its frequent visitors, affords an inexhaustible quantity of trout. The pond, raised by the dam, varies greatly in size. Generally it is only about a quarter of a mile in length, and above that the river winds a tortuous course for several miles among grassy flats, and for a still further distance a still more devious way, if possible, among a thick margin of alders. The water is swift and cold, and there is a trout hole in the curve of each bend, which is well populated. When the water is up, a boat can go all over the meadows, the trout running farther up, the distance to the fishing grounds being thereby reduced about seventy-five per cent. Several lakes and ponds empty into this river, which furnish homes for the trout in winter.

Many deer come into Round Pond, Wolf Pond, and the other sheets of water in the neighborhood, and traces of bear are also visible. Many partridges are to be found in the woods. There is a good, although unpretentious, hotel at the dam, kept by R. J. Cunningham (better known as "Rus"), where guides and boats can be obtained. Tobey and Chisholm run a line of Concord coaches to Duane, fifteen miles south, connecting with Paul Smith's stages for all interior resorts of any note.

At Meacham Lake (see route four, above) there is a well known hostelry, where boats, guides, etc., may be found. This is a famous place for deer shooting. The surrounding country is full of

game and the waters of the lake abound in fish. A good road leads from Malone, thirty-one miles, to the Hunter's Home, which is headquarters for the shooting and fishing of Loon and Rainbow Lakes, and Elbow, Round, Mud, Buck and Oregon Ponds.

Chateaugay, on the Central Vermont Railroad, has excellent hotels, with boats and other conveniences for the fishing and shooting of the Chateaugay Lakes.

Plattsburg. Stage or hired conveyance takes the sportsman from here to Chazy Lake, renowned as a game ground and possessing comfortable hotels, with all sporting facilities. Rainbow Lake, and Round, Buck, Jones, Lily Pad, Elbow and Plumadore Ponds, the North Branch of the Saranac, and Nigger and Cold Brooks are all noted for their speckled trout, and most of them are fine points for shooting deer.

Crown Point is the starting point for Root's, a favorite headquarters for sportsmen where all needed supplies may be secured. West Sturtevant Branch and Schroon River afford excellent fishing. Fenton's Tavern, in the vicinity of Mud and Clear Ponds, and the Lakeside House at Clear Pond, also furnish comfortable accommodations. Lake Andrew, the noted Preston Ponds, and Lakes Sanford and Henderson are all full of trout.

Ticonderoga. Routes extend to Long Pond, Paradox Lake, Schroon Lake, and other waters where bass, pickerel, large trout, etc., are caught in great numbers. Crane Pond has pickerel, and Bartlett's, Regis, and Gull Ponds are noted for trout and deer.

Deer and ruffed grouse are found at Schroon Lake, which lies on the very borders of the great forest, and within a few hours drive and tramp of some of the wildest and most sublime scenery of the Adirondacks. No better accommodations could be desired than those furnished by the Leland and the Ondawa Hotels, both situated in the pleasant village at the head of the lake. No more efficient guides can be secured anywhere than Sam. Saunders, Ben. Wickham, Geo. M. Sawyer, N. B. Knox, and Ed. Jenks. The route to Schroon Lake from the south is via rail from Saratoga Springs to Riverside, fifty miles (Adirondack Railroad, fare $2;) stage to Pottersville, six miles, good road and fine scenery, fare $1; steamer through the entire length of Schroon Lake, nine miles, fare seventy-five cents.

Caldwell, at the head of Lake Champlain, possesses excellent hotels and is near fine hunting and fishing grounds.

Amsterdam, on the New York Central Railroad, is connected by stage route with Lake Pleasant and the adjacent waters. Fish and game are abundant all through this region.

Fonda, on the same road, is a starting point for Garoga, Pine and Stink Lakes, all abounding in fish.

Blue Mountain Lake is one of the best points of interest in the Adirondacks. From it one can go by water to almost any desir-

able point. It opens into Eagle Lake, which is two miles long, and which, in turn, opens into Utawana Lake, a favorite haunt of the deer. Below this lake is Marian River and then Racquette Lake. From Blue Mountain Lake to Long Lake there is a more direct route with four miles of carry, but even the guides when travelling light, will take the longer and all-water route. The trout in these lakes are very abundant and large. A little north of Blue Mountain Lake is a little pond literally filled with brook trout, and they respond most quickly to the fly. In the fall there is no spot in the Adirondacks where deer and partridges are more plenty. Chauncey Hathorne keeps an excellent house here. The route is via North Creek, the terminus of the Adirondack Railroad, sixty miles from Saratoga; thence stage five miles to J. Eldridge's hotel at North River; thence stage, good road, fifteen miles to R. B. Jackson's on Cedar River; thence team ten miles to Blue Mountain Lake.

The Oswegatchie River and Fishing Grounds. The east, or main branch, of the Oswegatchie River rises in Crooked Lake. From Crooked Lake it runs in a north-easterly direction some six or eight miles, to where it forms the branch from Deer Pond (Colvin's Lost Lake) country. It is known above this point as the Robinson River. Below the junction, some two miles, it tumbles over a ledge of rocks some twenty feet in height. Here, at the foot of these falls, known as the "High Falls," on the inlet, are found speckled trout of three to four pounds weight. Above the falls are plenty of trout weighing from a quarter to a half pound. Half a mile further down are "The Plains," a tract of country that has been cleared of timber by wind and fire, some three miles long, and varying in width from a quarter to three-quarters of a mile, and nearly surrounded by hills of from three to five hundred feet high. Near the upper part of these plains is a good "trout hole" when the water is not too high. In the brook are also small trout. All along here, and for some miles further down, the fishing is good, and for a stretch of ten miles the chances for a shot at a deer by day or jack light are very good. On the west side of the river, near the foot of the plains, and distant from one and a half to two miles, are the "Five Ponds," taking their name from their number. These, or a part of them, are good ponds for deer. About this section there is now and then a wolf and panther. At the foot of this still water are some three miles of rapids, on which, about the first of June, is some good fishing. Below this we come to the "Drowned Land," a large swamp overflowed by the draining of Cranberry Lake, where, in September, fishing and hunting are both good. A dozen or more ponds empty into the lake on the south and south-east side, among which are Bossout, Cat Mountain, Cow Horn, Olmstead, Darnneedle, Fish Pole, or Little Grass, as it is sometimes called, Little Gull, Curtis, and other small ones. Nearly all of these are good for trout or deer, and some of them for both.

To reach this hunting ground, the sportsman has a choice of two routes. First—leave the Rome, Watertown and Ogdensburg Railroad at Gouveneur, going through Edwards to Fine, twenty-five miles by stage, three times a week, or by private conveyances. At Fine, one can put up at a good hotel, or go on five miles to Griffin's, where he will find as good fare and accommodations as can be had at a first class farmhouse. Here, or at the hotel, good guides with light boats for three dollars a day, and board can be had, also team, usually oxen and sled, to convey boats and baggage to the foot of still water on the outlet or inlet, as the river is frequently called above and below the lake. Second—he can leave railroad at Canton and go direct to the foot of Cranberry Lake by team. The distance is about forty miles, and is accomplished in a day. Good light boats weighing thirty to forty pounds can be purchased at Canton, or rather poor ones may be hired at the hotel at the lake. One can get there with or without guides.

Pine Pond, in the southern edge of the township of Blandford and Blenheim, is a favorite fishing place for large black bass and pike. Reached by rail to Chatham, thence stage or hired conveyance.

Boreas River affords good trouting, the fish averaging nearly a pound apiece. The best fishing spots are at Lester Dam and Leach Eddy. The route is via Adirondack Railroad to Riverside, fifty miles from Saratoga, thence stage to Pottersville on Schroon Lake, steamer thence to Schroon Village, and from that point, twenty-five miles by buck board. Stop at Powell Smith's.

Broome County—

Deposit. Ruffed grouse, woodcock, grey and black squirrels and some wild pigeons. Reached via the Erie Road, one hundred and seventy-six miles from New York City.

Cayuga County—

Owasco Lake contains black bass, lake trout, pickerel, and yellow perch. The latter are often taken with gay flies. Reached by rail via Auburn.

Auburn. Woodcock, partridges, ducks, plover and snipe. On the New York Central Railroad.

Montezuma. In the marshes is good snipe shooting. Go via New York Central to Port Byron, or to Cayuga.

Cayuga Lake. Speckled trout, Oswego bass, silver bass, strawberry bass, black, and rock bass. Cayuga on the New York Central Railroad, Union Springs, Aurora, Ithaca, and other points reached from Cayuga via rail or boat, are all provided with boats and there the angler will find good accommodations.

Chautauqua County—

Findley's Lake. Eight miles from North-East on Lake Shore Railroad, and seven miles from Sherman or Buffalo, Corry and Pittsburg Railroad, reached by omnibus from each place. Three miles long by one-quarter mile wide. Salmon trout, pike, black bass, Oswego bass, perch, snipe, woodcock, plover, grouse, and squirrels. Findley's Lake House, R. A. Corbett, Proprietor. Croquet grounds, bath-house, stables, steam yacht, etc.

Chenango County—

Oxford. The game found in the vicinity includes foxes, raccoons, wood-

chucks, rabbits, black, grey and red squirrels, chipmunks, hawks, partridges, pigeons, woodcock, wild ducks, and cranes.

Clinton County—

Champlain. Good hunting, and salmon and brook trout fishing. Reached via the Vermont Central Railroad to Rouse's Point, thence via Ogdensburg and Lake Champlain Railroad.

Delaware County—

Colchester affords good ruffed grouse and woodcock shooting, and there are many trout streams in the vicinity. It is situated in the valley of the east branch of the Delaware, and is reached by the Oswego Midland Railroad. Stage thirteen miles from east branch station. Good farmhouse accommodation. Country hilly.

Dean's Corners. Take steamboat or railroad to Kingston, thence rail to Dean's Corners, on Ulster and Delaware Railroad. Good trout fishing, small game, and an occasional deer.

Long Pond. Wagon ten miles from Westfield, on the Oswego Midland Railroad. Large trout very abundant in the ponds and adjacent streams. Country nearly all forest, and hilly. An occasional deer; ruffed grouse, woodcock, wood duck, and snipe. Must camp out.

Griffin's Corners. Bears, foxes, rabbits, ruffed grouse and trout. Go via steam or rail to Rondout, thence Ulster and Delaware Railroad. Hotels and private board $1 to $2; teams $3 to $6.

Dutchess County—

New Hamburg. Ducks and wild geese. On the Hudson River, sixty-four miles above New York; reached via rail or boat.

Erie County—

Buffalo. On the lake shore, in the vicinity, the residents of the city take many bass.

Sardinia. Trout in the neighboring streams. Grey squirrels and ruffed grouse are found at Hemlock Lake, six miles from Livonia station, on the Rochester branch of the Erie Railroad.

Essex County—

Fort Ticonderoga. Fine fishing in the vicinity. Reached via the Central Vermont Railroad.

Elizabethtown. Deer, bears, etc., here afford fine sport. Elizabethtown is delightfully situated eight miles west of Lake Champlain. Few localities have surroundings more charmingly romantic. Twelve miles further west is that gem of all the Adirondack valleys—the famous Keene Flats. They are both favorite resorts of artists and people of refinement, generally in the summer months. Reached via Lake Champlain steamers to Westport, thence wagon or stage.

Tahawus or Mt. Marcy. Panthers, Canada lynxes, rabbits, sables, hares, squirrels, etc.

Port Kent. At the mouth of the Ausable, and extending along Champlain for about three miles, is a large marsh, affording numerous lurking places for wild fowl, and, in years when the water is high and the marsh covered during October and November, the different varieties of ducks and Canada geese visit it in great numbers. Reached via the Delaware and Hudson Canal Company Railroad, or via the Lake Champlain steamers.

Westport. The waters abound with pickerel, perch, black bass, trout and other varieties of fish. Reached from New York via Albany and Saratoga to Whitehall, thence via steamer to Westport. Time, fourteen hours; fare $8. The Nichols hotel affords good accommodation.

Greene County—

Catskill. At the Embouchure or Rodgers' Island, there is duck and snipe shooting. Hudson River Railroad, and steamboats.

Tannersville, among the mountains, fifteen miles from Catskill, and reached by stage from that place. Good trouting in the mountain streams.

Leeds. Trout and pickerel fishing, with some woodcock shooting in the vicinity. Reached by carriage road from Catskill.

Hunter. Trouting in the mountain streams, and bears among the mountains. The favorite resorts for anglers are the Cauterskill and Clove.

Stony Clove, whose streams abound in trout of small size. Reached via stage from Catskill, or via Ulster and Delaware Railroad to Phœnicia, thence stage or hired conveyance.

Livingston County—

Caledonia. There is salmon fishing in Caledonia Creek. Take the Erie or the New York Central Railroad.

Jefferson County—

Theresa. In Jefferson County, which lies upon the outskirts of the Adirondack region, there are the usual varieties of mascalonge, black bass, pike, pickerel, and salmon trout, and the fishing grounds are most easily reached from Theresa and other points on the Utica and Black River Railroad. Notable among these is the Indian river and adjoining lakes. Comfortable accommodation is afforded for small parties at the summer houses on the lakes. Trolling is almost the only mode of fishing in vogue, and W. D. Chapman, of Theresa, the patentee and manufacturer of various kinds of spinning tackle, does a large business in supplying the fish with "spoon-victuals."

Dexter. Mascalonge, pickerel, black bass, rock bass, wall-eyed pike, yellow perch, sunfish, mullet, eels, bullheads and catfish. Reached via the Hudson River and Central Railroads to Rome, thence by the Rome, Watertown and Ogdensburg Railroad to Limerick, on the Cape Vincent branch; thence by stage one mile and a half to Dexter. There are two hotels where the accommodations are good, and the prices reasonable. Board can also be obtained in private families. Boats and livery at reasonable prices.

Cape Vincent. Mascalonge; plover, snipe and other varieties of game. Reached via the Rome, Watertown and Ogdensburg Railroad. Hotels.

Henderson. Good bass and pickerel fishing. Leave New York via New York Central Railroad so as to arrive at Utica at noon; make immediate connection with Black River Road to Watertown, and thence to Sackett's Harbor by railroad, arriving at 7 P. M.; thence by steamer to Henderson, or by the same train go on to Rome, connect immediately with Rome and Watertown Railroad, get off at Adams, and take the stage over to Henderson, eleven miles. Hotel accommodations, Frontier House, at $5 per week. Good boats, fishing gear, and good oarsmen, are on the spot. Mr. Tyler will rent or sell as good boats as can be made, completely fitted out with minnow pail, frying pan, etc., etc., and will furnish flies, spoons, etc.

The Islands in Lake Ontario. Some of the finest black bass fishing within easy access of New York city, is to be found about the islands that lie in Lake Ontario, a score or less of miles from where it merges into the St. Lawrence River.

The fish are equally plenty at the head and foot of Stony Island, at the foot of Little Galloo, at the head of Fox and the lower side of the Grenadier Islands. The Duck Islands are a much better place than either of those named, but considerably further out in the lake. They are very rarely visited and their shores are lined with bass. There is, however, little choice of water at the foot of the lake. Wherever a shoal makes out from the islands the bass congregate. These grounds are rarely visited, save by the inhabitants of the neighboring hamlets, and the fish scarcely know the fear of the hook. Next to the Duck Islands, the bass are thickest at the foot of Galloo. There is fine pickerel and pike fishing in the little bays that indent the main shore, and often a mascalonge is taken there.

The black bass begin to bite in these waters about the first of June; July and August are the best months. They are caught with the fly, bait or spoon.

The island above-named may be reached from any of the fishing villages along the Jefferson County shore. The distance is short from Cape Vincent, Sackett's Harbor, Three-Mile Bay, Chaumont, or Henderson. The fishermen at the latter place charge three, four or five dollars a day for their services, according to the kind and number of boats they furnish. For two persons in a sail-boat that is small enough to be rowed, the price is three dollars. Alden Stevens understands the grounds perfectly, and owns a comfortable shanty on Galloo. His address is Henderson, New York. The expense of reaching Henderson Bay from New York City, is $8.40. There are no mosquitoes on the islands. The cost of camp or shanty life is small, and a party of five might spend ten days at the foot of the lake for $40 each, including car fares. Five dollars a day would be the boatman's charge for the yacht and two skiffs. In going this way the party can easily do

the Thousand Islands, also, by turning the yacht into the river and cruising down and back. The fishing, however, is far better in the lake.

Take the Ogdensburg Railroad to Adams, thence stage to Henderson, where outfit can be procured.

The Thousand Islands. This well known resort of pleasure seekers and summer tourists offers many attractions to the sportsman. The waters of the Bay teem with fish and wild fowl. Black bass, pickerel, perch, pike, and the mascalonge afford magnificent sport for the angler, while the gunner will find waterfowl in great variety and abundance, ducks, snipe, with woodcock and quail.

Alexandria Bay is the chief resort at the Thousand Islands. Black bass, pickerel, perch, pike, and mascalonge fishing; woodcock, snipe, quail and duck shooting. The hotels are the Crossman House and the Thousand Island House, each large and well appointed establishments with every convenience and comfort. Terms $3 per day. Board is readily obtained at the farm-houses in the vicinity. Boats and boatmen $2 to $3 per day. The principal routes are: 1. Via New York Central Railroad to Rome, thence via the Rome, Watertown and Ogdensburg Railroad to Cape Vincent, thence steamer, thirty miles. 2. From Syracuse via Syracuse Northern Railroad to Sandy Creek, thence via the Rome, Watertown and Ogdensburg Road. 3. From Utica via Utica and Black River Railroad to Clayton, thence steamer, twelve miles. 4. As before via Utica and Black River road to Morristown, thence stage seven miles. This route includes Theresa and the Indian River lakes. 5. From Ogdensburg via steamer. 6. By St. Lawrence River steamers.

The best known hunting and fishing grounds are: Goose Bay, three miles above the village; Halstead Bay on the Canada side; Eel Bay at the head of Wells' Island, the Lake of the Island, and Fiddler's Elbow. The season for mascalonge is from the middle of May to the last of June, for bass from the middle of June to September.

Clayton. The fishing is excellent; black bass, pike, mascalonge. The Walton House is frequented by sportsmen. Board may also be found at the farm-houses. Reached via Utica and Black Valley Railroad, or steamer from Alexandria Bay, also via Grand Trunk Railway to Gananoque, Ont., thence ferry.

Brockville, on the Canada side, (Brockville County, Ontario,) is situated at the foot of the group of islands. It is easy of access via Grand Trunk Railway or the St. Lawrence steamboats. From the south the route is via Utica and Black River Railroad to Morristown, thence a ferry crosses to Brockville. Excellent hotel accommodations will be found here with boats and every facility for excellent sport.

Kings County: Long Island—

Long Island and its adjacent waters, especially those of the south side, abound in game and fish in great variety—deer, ruffed grouse, quail, rabbits, foxes, ducks, geese, brook trout, and all varieties of sea fish common to the waters of its latitude—the Great South Bay, Peconic Bay, and Shinnecock Bay being the favorite localities for wild fowl shooting and sea fishing. Deer can be shot only from the 1st to the 15th of November in each year, and in the centre of the island are tolerably abundant. There are a good many quail and grouse, but many of these are on private grounds and not available to the public.

The whole number of improved trout ponds on Long Island is eighty-two. They occur on both sides of the Island, from Brooklyn to Riverhead. Most of these are private, but there are several in which fishing privileges are sold to transient anglers at so much per day, or $1.50 per pound caught. The principal ponds are at Maspeth, Little Neck, Smithtown, Northport, Huntington, Centreport, Cold Spring, Wading River, Smithtown River, and Roslyn, on the North side, and at Riverhead, Seatuck, Belleport, Fireplace, Islip, Patchogue, Canarsie, Seaford, Amityville, Babylon, South Oyster Bay, Freeport and Hempstead, on the South side.

There are some waters open to the public, but they yield meagre returns.

Kings and Queens County, comprising Brooklyn and many large towns, occupy the extreme western end of Long Island. Suffolk County occupies the remaining four-fifths, and consequently most of the places which we shall enumerate are found within its limits.

Canarsie, the terminus of the East New York Railway. The fishing is for striped bass, weakfish, kingfish, flounders and sheepshead. Marsh hens, bay snipe, yellow legs, etc., furnish good sport. There are over sixty boats and forty yachts constantly on hire. Rockaway Beach is eight miles from Canarsie, and can be reached by a steamboat three times a day—10 A. M. and 1 and 4 P. M. We

know of no better place for temporary sojourn than Canarsie. The Bay View House there has a piazza that incloses it entirely on three stories.

Livingston County—

Conesus Lake. Bass, pickerel, perch and other varieties of fish here furnish good sport. Reached via the New York Central Railroad.

New York County—

The Fishing about New York City. For striped bass, the favorite localities are: in the East River, Hog's Back, Flood Rock, Big and Little Mill Rocks, Holmes' Rock, Nigger Point, the Rope Walk and Ward's Island, Woolsey's Point, Lawrence's Eddy, and along the Long Island shore; the kills which connect the East and Harlem Rivers; in the Harlem River, at the floats foot of 3d Avenue, McComb's Dam and King's Bridge. For fishing at these points boats may be obtained at Colonel Brown's, foot of Thirty-second Street and Avenue A., E. R., Jeroloman's, foot of East Eighty-fourth Street, E. R., at Harlem Bridge and McComb's Dam. Westchester Creek generally has good spring fishing. In the Hudson River, the fish are usually first taken at Newburgh, Poughkeepsie and other localities where they begin to feed, after leaving their winter quarters at the head of the river. A little later in the season, they are taken in great numbers off One Hundred and Twentieth Street. The English Neighborhood, above Hackensack, on the river of the same name, is much resorted to by anglers in the proper season. Down the Bay, a noted place is the Kill Von Kull, which separates Staten Island and the New Jersey shore, all along the Jersey Flats, good fishing is to be had at the light-house, on the south end of Newark Bay, Bergen Point, Robins Reef, and off the mouth of Caven Channel, below Communipaw. Fort Wadsworth on Staten Island, the Narrows and Princess Bay are also visited. Captain Al. Foster's steamboat makes regular trips to the Fishing Banks.

For weakfish, the most noted fishing grounds are about Fort Richmond and the Narrows. Rockaway and Canarsie Bay afford good sheepshead fishing in summer. Kingfish are also taken off Rockaway, as well as bluefish, bonita and Spanish mackerel.

Madison County—

Oneida Lake. Pickerel and bass fishing good. Go to Canastota on the New York Central Railroad, thence drive to Bridgeport or to the lake direct, or go to Chittenango Station, thence three miles to Lakeport.

South Lake. Woodcock and grouse. Reached via Utica and Black River Railroad to Prospect, thence by highway.

Monroe County—

Rochester. Twenty-five miles from Rochester is Hemlock Lake, a fine fishing ground for trout. This lake is reached by the Rochester Branch of the Erie Railroad, from Livonia Station. Youman's stage line connects with the station. It is six miles to the lake.

At the foot of the lake is the Jacques House. On the western side is the Lake Shore House. On the eastern side is located the Lima House, and Halfway House, the regular stopping place for the steamer Seth Green, that plies its way regularly each day to the head of the lake.

On *Irondequoit Bay* and at other localities, are widgeons and redheads, mallards and black ducks, with good jack snipe, quail, grouse and woodcock shooting. The Brackett Marshes are favorite snipe grounds. Black and grey squirrels are found in the vicinity.

Greece. Ducks, brant, woodcock. Reached by drive from Rochester.

Mendon Ponds. Pickerel, black bass, perch and strawberry bass are abundant. Take the New York Central Railroad.

Niagara County—

Niagara Falls. The Niagara River, both above and below the Falls, is a favorite resort of the ang'ers in the vicinity, who take large numbers of black bass by loading their line with a bullet, and slinging it out into the channel of the river. Then hauling in, the current gives the line an oblique direction, and the angler frequently brings a fine bass to hand.

Bass have been caught off the Three Sister Islands in the middle of the rapids, and almost at the foot of the Falls they are plenty. There is also fine perch fishing in the spring and fall, and, seven miles below, at Lewiston, and still farther

down on the Canada side at Niagara village, are bass, perch, and in the season plenty of herring, with now and then a pike or mascalonge.

At the "Old French Landing," within ten minutes walk above the Falls, is a favorite spot for black bass and pike. Burnt Ship Bay, above, in the spring teems with perch, and all around the bars of Navy Island, black bass are abundant. The piles, standing in the water at the site of the old store-house, above Gill Creek, are good fishing grounds for rock bass. Still further up the river at La Salle, bass, perch and sunfish are caught in great abundance. On the Canada side, near Chippewa, excellent perch fishing is to be had. The shooting is for quail, snipe, woodcock and black and grey squirrels. The latter are very abundant along the line of the Lake Ontario Shore Railroad, west of Kendall station.

Oneida County—

The Mohawk and Sauquoit Rivers, and West Canada Creek, Black River, and the streams about Boonville and Trenton, contain trout, and were stocked in 1876, by the Central New York Sportsman's Club of Utica. Reached by New York Central, and Utica and Black River Railroads.

Fish Creek, which empties into Oneida Lake, twenty-eight miles north of Rome, is an excellent trouting stream. Take the Rome, Watertown and Ogdensburg Railroad.

Onondaga County—

Liverpool. Ducks and geese in the Seneca River near Onondaga Lake. Reached via the Rome, Watertown and Ogdensburg Railroad.

Brewerton. Black and rock bass in the Oneida River. Reached as above.

Skaneateles. Fine salmon trouting in the lake. Reached via the New York Central Railroad.

Syracuse. In Onondaga Lake are found ducks, and there is good snipe and plover shooting in the vicinity.

Baldwinsville. Ducks, wild pigeons, rabbits and other game. The common varieties of fish. Reached via the Delaware and Lackawanna Railroad.

Ontario County—

Honeoye Lake affords good perch and bass fishing. Reached via the Central Railroad to Honeoye Falls. Hotel, etc.

Canandaigua on Canandaigua Lake. Whitefish and trout afford fair sport. Reached via the New York Central, or the Northern Central Railroad. Hotel $1.50 to $2; teams $4 to $8.

Orange County—

Florida. In Mirror Lake, a mile from Florida, are many varieties of fish pickerel being abundant, and of large size. The lands and extensive wood three miles from here afford excellent hunting for partridge, woodcock, snipe, squirrels and other varieties of game. The Dill House at Florida, a famous hotel, and the Glenmere House at the lake, are first class houses. In addition to these are several private boarding houses. Reached via the Erie Railroad.

Greenwood Lake. Bass fishing, ruffed grouse, quail and woodcock. Take Montclair and Greenwood Lake Railroad, a ride of forty-two miles from New York. Hotel accommodations, boats, guides, etc., at the Brandon House.

Monroe. Within a radius of three miles are four lakes: Round, Long, Mombasha and Hazzard's or Cromwell's, all of them well stocked with fine varieties of fish and affording excellent sport. Good woodcock shooting is found in the vicinity. Reached via the Erie Railroad, fifty miles from New York. There are several hotels and boarding houses, and accommodations may also be obtained among the farm houses.

Warwick. On the drowned lands of the Wallkill, covering a vast extent of territory, the most noted resort for woodcock in this section of the country, they are generally found in large numbers and the bags correspondingly large. There is an excellent tavern at Pine Island, kept by the Carling Bros. Many sportsmen resort there. Reached via the Erie Railroad.

Montgomery is in the vicinity of good hunting and fishing. Reached via the Erie Railroad.

Turner's. Black bass, quail, grouse, and other game. Reached via the Erie Railroad, forty-seven miles from Jersey City.

West Point. The only fishing near West Point for trout is in two or three streams that rise in the Fishkill Mountains. A short drive from Cold Spring,

about five or six miles will take one to the head of them. There is a stream near Fort Montgomery, below West Point, that has trout in it.

Newburgh. On the Shawangunk Mountains, twenty-four miles back of the city, are partridges, woodcock, quail and rabbits.

Orange Lake House, on south side of Orange Lake, six miles west of Newburgh, has facilities for boating and fishing on Orange Lake, one of the most picturesque sheets of inland water in the country, and studded by fine groves and picnicking grounds.

Central Valley is forty-eight miles from New York City, and ten miles distant from West Point among the Highlands. About two miles east of the station is Summit Lake, affording good fishing and boating. Summit Lake House $6 to $15 per week, also private accommodations $7 to $10 per week. Route as above.

Guymard Lake, eighty miles from New York City, is a clear mountain lake, about one and one-half miles in circumference, well stocked with fish. Guymard Spring House, board $10 to $12 per week, boats, etc. Game in the adjacent woods and fields. Route as above.

Port Jervis is eighty-eight miles from New York City. The junction of the Delaware and Neversink Rivers is near this place.

Port Jervis is the centre of a section noted for its fishing and hunting, the celebrated trout streams of Pennsylvania, and of Sullivan and upper Orange Counties, being in the immediate vicinity and easy of access. A sojourn at Port Jervis is always attended with both pleasure and profit to the tourist, whether sportsman or not. In Pike County, just across the Delaware River, are the grounds of the Blooming Grove Park Association, where game of every kind abounds. Thousands of the finny tribe are caught, too, in the adjacent waters every year. Route as above.

Middletown. Good fishing can be found in the Wallkill, forty minutes walk from town, and duck hunting along this stream and others in the vicinity. Rabbits and small game abound in the woods near at hand, and an hour's ride by rail will take one to the trout streams and hunting grounds of Sullivan County. There are a number of fine hotels, ($10 to $15 per week) and several private boarding houses $6 to 10 per week. Reached via the Erie Railroad.

Otisville. There are many streams and lakes in the neighborhood, abounding in various kinds of fish. Route as above. Several good hotels and private boarding houses.

Lake Sterling. Take Erie Railroad to Sterling Junction, or in case the train does not stop there, go to Sloatsburg, walk back to the junction, and take cars per Sterling Mountain Railroad to Sterling Mines, the terminus of the road. The train makes but two trips daily. Inquire at the junction, for the superintendent, John C. Missimar, from whom it is necessary to obtain an order for the boat. The lake is but five hundred yards distant from the mines. There are two boats, one large yawl, capable of carrying fifteen persons, and one small boat, which will safely carry six "light weights." The fish most sought for are pickerel and perch, and the former are taken weighing from one-half to seven pounds each. There are two ways adopted for catching them, one by trolling and the other by "still" fishing, with live minnows for bait. Occasionally a brook, also a lake trout (salmon) is caught.

Goshen is within two hours' ride of the trout brooks of Sullivan County, and the game covers of Cedar Swamp, the Warwick Woodlands, and the Great Wild Meadows, all abounding in woodcock, plover, quail, and other game. The route is via the Erie Railroad. There are several hotels and boarding houses, with prices ranging from $12 to $6 per week.

Oswego County—

Minetto. Black bass, pike, pickerel, trout, ruffed grouse, quail, snipe, woodcock, ducks. Reached via the Delaware, Lackawanna and Western Railroad to Oswego, thence stage or wagon five miles. Hotel $2; boats, etc., to be hired. Rolling country.

Sandy Creek. Ducks, red-heads, brants, blue-bills, and other varieties of wild fowl afford fine sport.

The *Oswego River.* Good bass fishing. Take rail to Oswego.

Redfield. Excellent trouting may be had on the Salmon River. The favorite spots are Seymour's and Covey's Bridge, the Meadows, North Branch, the Brick Yard, Petrie's and Stony Brook.

Otsego County—

Some woodcock may be shot in the vicinity of Richfield Springs. Canadarago

Lake has been stocked with trout and whitefish, and affords besides a variety of fishing. There are good hotels here, $3.50 per day, $15 to $25 per week. Take the Delaware, Lackawanna and Western Railroad.

Putnam County—

Lake Mahopac. The fishing is excellent, and with other attractions, makes this a favorite summer resort. Reached via Harlem River Railroad, by a branch line from Golden's Bridge. There are several large hotels $18 to $25 per week, and boarding houses $10 to $15 per week. A large flotilla of boats and yachts. The surrounding country is rugged.

Carmel. The Patterson swamp is a famous ground for sportsmen. The game includes woodcock, and other varieties.

Lake Oscawana, among the Highlands, is a good place for summer camping. July and August are the best months for general fishing. Take the Harlem Railroad to Golden's Bridge, thence branch road.

Rensselaer County—

Troy. The fishing at Troy is confined chiefly to perch and bass. There are many trout streams in the vicinity, but there are about two fishermen to every fish.

Troy sportsmen go to Westerboro, back of the Helderburgh Mountains. Woodcock are here found in large numbers, it being quite a favorite breeding place for them and the hunt there invariably results in large bags.

Queens County—

See Kings County.

South Oyster Bay is a pleasant place for a day's fishing. There are good hotels here. The route is via the South Side Railroad.

Freeport. Good perch fishing between this point, and Baldwinsville. Reached via the South Side Railroad.

Hempstead. Quail shooting is good in the vicinity. Hewlett's Hotel is a comfortable house where the sportsman will receive every attention. Reached by rail.

Far Rockaway. Good blue-fishing. Go to Bath, Canarsie, Penney Bridge, Brooklyn or Jersey City to hire yachts.

Rockaway Beach is a famous pleasure resort for New York and Brooklyn people. A long, narrow, sandy peninsula encloses a broad inlet with several marshy islands. Great numbers of wild fowl congregate in the vicinity and there is always good fishing for sheepshead, bluefish, bonita, and other varieties in their season. Reached via the South Side Railroad. There are good hotels, and every facility for sport. It is an easy, cheap, and delightful trip from the Fulton, South, and Williamsburgh Ferries by horse cars to East New York, steam cars to Canarsie, and steamboat to Rockaway Beach—fare fifty-five cents. The favorite skippers know the intricacies of the great Jamaica Bay thoroughly, this including Canarsie Bay.

Seaman's Pond in Ridgewood, thirty miles from Brooklyn via the South Side Railroad, affords excellent fishing. The terms are moderate.

Farmingdale is a good point to start from for scrub quail shooting. Take the Long Island, or Flushing Railroad.

Richmond County—

This county is formed by Staten Island, which is reached by ferry from New York. The fishing is principally for weakfish, the favorite points for this sport being Rossville and Prince's Bay. The latter place is reached by cars to Richmond Valley station, thence stage. Go to Steele's for boats, tackle, bait, etc.

New Dorp. About here will be found good shooting for woodcock, quail, snipe, yellow legs and other varieties of birds, with rabbits abundant in the neighborhood.

Rockland County—

Sloatsburg. Bass and pickerel in Truxedo Lake, Potague Lake and Cedar Pond, all within three miles, woodcock, snipe, etc., in the vicinity. Reached via the Erie Railroad. There is a hotel besides summer boarding houses.

Piermont and *Suffern*, reached via the Erie Railroad furnish good woodcock shooting.

Ramapo, on the Erie Railroad, contains one summer boarding house, "Terrace Hall," a few hundred yards from the depot, pleasantly located on the banks of the Ramapo River, and capable of accommodating forty boarders.

At this point a wide and beautiful expanse of water, formed by damming the Ramapo River, affords the visitor a rare opportunity for boating and fishing.

Sloatsburg, on the Erie Railroad, Tuxedo Lake, three miles, Potague Lake, one mile, and Cedar Pond, two and a half miles distant, all abound with bass and pickerel. Good game grounds in the vicinity.

Cedar Pond. There is excellent woodcock shooting in the vicinity.

Saratoga County—

Dean's Corners. Bears, ruffed grouse, pigeons, squirrels, rabbits, trout in the Beaverkill and other streams. Board $2 at hotel, $1 to $2 in private house; guides $2. The country is hilly and mountainous.

Schenectady County—

The Mohawk River affords fine bass fishing, at several points.

Schuyler County—

Watkins. Ruffed grouse, wild ducks, rabbits, squirrels; black bass, pickerel in Lake Seneca, and trout in the streams. Reached via the Northern Central Railroad. Hotels $2 to $3.50; boats 25 cents per hour.

St. Lawrence County—

Ogdensburg. In Black Lake, six miles up the Oswegatchie, is pickerel, pike and bass fishing. Take boat and camping equipments from the city. In the Oswegatchie below the dam, bass and perch are caught. Mascalonge in the St. Lawrence below the city. Duck shooting is good in season, with partridges, woodcock and other varieties of game. Ogdensburg is reached via the Central Vermont, or the Rome, Watertown and Ogdensburg Railroad. Opposite Ogdensburg is Prescott, the terminus of the St. Lawrence and Ottawa Railroad, and an important point on the Grand Trunk Railroad. Two ferries, running three boats and making half-hourly trips, connect Prescott and Ogdensburg. Alexandria Bay and the Thousand Islands, the famous fishing and camping grounds, are about thirty miles up the river, the islands extending from Brockville to Cape Vincent, sixty miles. This great pleasure resort is reached from Ogdensburg, by various lines of steamers. During the season, boats leave at 8 and 9.30 A. M., and 1 and 6 P. M., making the run in two hours.

Steuben County—

Hornellsville. Ruffed grouse, quail, rabbits, black and grey squirrels, of the latter very good shooting. Hornellsville is on the Erie road, ninety-one miles from Buffalo.

Lake Salubria. Salmon trout, pickerel, perch, strawberry, Otsego, and black bass.

Crooked Lake. This lake is about twenty-two miles long, and abounds in salmon trout, pickerel, black and strawberry bass, perch, whitefish, etc. The Grove Spring House, Stephen Moore, proprietor, is on the east shore of the lake, six miles from Hammondsport. Route: Erie Railway to Elmira, or Penn Yan. Goodhue and Cranberry Lakes afford fine bass, perch, and pickerel fishing.

Suffolk County—

See Kings County.

Babylon. A comfortable village with several hotels, the American, Lagrange, Sampwanis and other houses. The fishing here is famous. Great South Bay, to which stages run, is one half mile south. A steamboat crosses several times daily, to Fire Island. The peninsula of which Fire Island is the western extremity, extends forty miles to the northeast, and shelters Great South Bay, Moriches Bay, and Shinnecock Bay. The fishing ground off Fire Island is about thirty to thirty-four miles off shore, and about four to six miles long, having from twelve to sixteen fathoms on the bank; the bottom is hard gravel, with small stones. There are plenty of cod, and a few halibut. The ground is known to many of the Noank fishermen. It is the path of the European packets, and land is just in sight from the ground. The course is south by west from Fire Island, and it is found by the lead.

Anglers also have fine sport taking bluefish with a rod in the vicinity of Fire Island, both inside and outside of the Bay. They are of large size, running from ten to thirteen pounds. An ordinary two-jointed bamboo bass-rod, is used with

float and sinker, and shedder crabs for bait. A wire snell is requisite, to prevent the fish from snapping off the line.

Oak Island, opposite Babylon, is a favorite resort for gunners; Rube Anderson is a good guide and boatman. Babylon is thirty-six miles from New York, on the South Side Railroad.

Bellsport, a pleasant village on Bellsport Bay, is a good point for bay bird shooting. Quail afford good sport in the vicinity. Fish abound in the bay. There are good boarding houses, $7 to $10 per week. Reached by Long Island Railroad to Bellsport station, thence stage three miles.

East Moriches. Quail and partridge shooting in the vicinity, affords excellent sport. The shooting and fishing on Moriches Bay is good. The East Moriches Hotel is a comfortable house. Dogs, boats, traps, and decoys are furnished by H. L. Rogers. Reached via Long Island Railroad.

Centre Moriches is a much frequented resort for anglers and gunners. Great numbers of fish and wild fowl are annually sent from here to New York. The Ocean, Moriches, Long Island, Baldwin, and other houses afford good accommodations. Yachts regularly sail across the bay to the outer beach, where the Havens House is much visited for its surf bathing.

Fisher's Island, four miles from New London, is good headquarters for fishing, and snipe and duck shooting. There is a hotel there with boats and other conveniences for sport. The route is via the Shore Line Railroad, and steamboat from New London or Stonington.

Good Ground is one of the best points on the Island for shooting ducks, geese, brant, yellow legs, dowitchers, ring-tailed marlins, quail, rabbits, foxes, and other game. Good hotel accommodations at the Bay View House, guides, boats, decoys and everything necessary furnished. William Lane or Orville Wilcox will give the sportsman the best of treatment and may be addressed for information.

Great Shinnecock Bay. Ducks are plenty in season, such as black ducks, broadbills, grey ducks, pintails, coots, etc. Most all varieties of birds are to be found here on the 20th October except geese and brant; their time to make their appearance is from the 1st to the 10th of November, when they are quite abundant. Experienced gunners at this place, men that have followed shooting for thirty years. They are prepared with live stools for geese and brant, also batteries for shore and point shooting. There is also good quail, and rabbit, and grouse shooting. The Bay and Ocean View House is situated within two hundred feet of the Great Shinnecock Bay and overlooks it. All birds passing over the bay can be seen from the veranda of the hotel. This is large and affords the best of accommodations for sporting men. Ammunition furnished at the house for all those that wish to save the labor of bringing it with them. Gentlemen visiting the Bay View House will buy tickets at James Slip or Thirty fourth street Ferry, New York, for Good Ground Station, Sag Harbor Branch Long Island Railroad, where a stage will convey them to the house.

Atlanticville, situated at the head of Shinnecock Bay, is headquarters for goose, duck and bay bird shooting. The gunners Washington Howell and John and Tuttle Carter, have a capital rig, and will be found able and obliging by all sportsmen.

Great South Bay. Noted for its fish of all descriptions, and also for its geese, ducks, and snipe. Take South Side road to Babylon or Islip. Pon Quogue and Good Ground are much frequented resorts, reached by same railroad. Good board and all necessary outfit of boats, stools, etc., at William Lane's, and Orville Wilcox's. Board alone $1.50 per day or $8 per week. Gunning outfit, including bayman, boat, board, etc., $10 per day. There is good quail shooting, also a few ruffed grouse and deer in the barrens anywhere within ten miles east or west of Islip. Deer can be shot only during the first fifteen days of November.

Islip. Near by are the trouting ponds and club house of the Sportsmen's Club. The village is frequented in summer for its fishing and shooting. Good hotel accommodations will be found here.

North Islip is a good starting point for scrub shooting for quail.

Merrick Bay, near Smithville, is an excellent place for shooting the great head duck, geese, and brant. Jim Baldwin is an excellent guide. Charges for boat, stools, and all told, $4 per day. A tavern called the Sportsman House, kept by B. F. Sammis, at Smithville, is a clean, small house; the landlord has every appliance for quail, snipe and duck shooting, such as boats, stools, etc. In this section the quail shooting is fairly middling, with good cover, easy walking and the brush not above the middle of the body.

Montauk Point. Excellent bay bird shooting and weak fishing. Ducks, geese

and trout are abundant. Reached via Long Island Railroad to Sag Harbor, thence stage. There is a good hotel, and boarding house. A favorite place for summer tenting on the beach.

Noyac. Noyac and its beautiful bay lie about four miles to the northwest of the old town of Sag Harbor. For wild duck shooting, no place on the island affords better sport or more game. Mr. Pierson has a cosy boarding place for summer visitors and sportsmen, and a letter to him, telling him what day you expect to arrive, will find him with his wagon ready at either the steamboat wharf at seven in the morning, or at the railroad depot at two or eight in the evening, according to the way you propose to reach the Harbor: the boat—W. W. Coit—leaving foot of Wall Street Mondays and Thursdays at five in the evening for Sag Harbor (fare, $1.50), and the cars from Hunter's Point at half past seven in the morning, and at half past three in the afternoon (fare, $2.75). The charge for board at Mr. Pierson's is a dollar a day, or seven dollars a week, with use of a boat. The *modus operandi* for Noyac Bay shooting is either to go on the long beach on Jessup's Neck, take your station at daylight, and await your chances for shots at the flights of ducks which regularly cross the neck from Noyac Bay to the Little Peconic Bay, or by taking a sail boat out in the bay, or a small boat, get in among thousands of ducks to be seen early in the day floating on the surface of the bay. After a morning's work at the ducks, you can take your gun and dog and go into the thick woods of the back country and get partridges and rabbits.

There is good trout fishing in Mr. Barker's preserve. Mr. Sampson's farm adjoins the pond on the southeasterly side, and he has a spare room for a couple of boarders during the summer months. There is good perch fishing in the mill-pond, and occasionally one may get hold of a trout, but they are scarce. Permission from Mr. Barker is required, to fish in the pond, which he readily gives. Noyac is a cultivated strip of land running along the southerly shore of Little Peconic Bay from Sag Harbor to North Sea. Once upon a time the waters of the shores of Noyac were full of game fish, but what with seines, nets and "pounds" they have all been driven away, and though the locality used to abound in bass, not a fish is now to be caught there. Off Jessup's Neck—a strip of land covered with cedar brush and full of nests of mosquitoes—there is excellent bluefishing to be had in season, and in the bay scollops abound, as also excellent hard and soft clams. There are a few porgies to be had in the bay and kingfish occasionally. Back of the cultivated strip there are the woods, which extend back some four miles toward Bridgehampton, and in the watered portion woodcock shooting is good in season. In the fall excellent wild fowl shooting is to be had in the bay, and for purposes of a family sojourn in summer to parties liking a very retired and out-of the-way country place, Noyac presents an attractive locality.

Patchogue is a good objective point for sportsmen on the Great South Bay. Ducks, quails and partridges are shot in the vicinity, and in the ponds are perch and trout. There are several boarding houses $8 to $12 per week. Take the South Side Railroad.

Peconic. Great Peconic Bay, well known for its fishing and shooting, is on the Long Island Railroad, eighty-eight miles from New York. Good hotels with boats, guides, etc.

Pon Quogue. Good shooting for ducks, geese, snipe, etc. The route is via the Long Island Railroad to Good Grounds, where a wagon may be procured to convey the sportsman to the shooting grounds. Go to William Lane's at Good Ground, who will furnish all necessary outfit.

Riverhead (several hotels), Smithville and West Hampton, all on the Long Island Railroad, are good points for ducks, quail, and woodcock shooting.

Ronkonkoma Lake, near Lakeland and Islip, has good perch fishing. Boats are to be obtained. Take the Long Island Railroad.

Sag Harbor is one of the cheapest places in the vicinity of New York, for boating, fishing, gunning, etc. Reached by the South Side Railroad, or steamer W. W. Coit, from foot of Wall Street, New York, fare $1.50. Board at several places, $7 per week. Inquire at Tucker's Fancy store, Sag Harbor.

Shelter Island. This island is partly owned by a Company who have a fine hotel, grounds laid out, and other attractions for summer visitors. During December, ducks of nearly all kinds, except canvas-backs, can be shot from any of the lowlands, by using decoys. Quail are also numerous in places. A steamboat leaves pier 25 East River, N. Y. The island is also reached by Long Island Railroad, from Hunter's Point to Greenport; fare $2.70. Hotel accommodations are good in Greenport. A row boat will land the hunter on Shelter

Island, in a few minutes. Ducks swarm here to feed. Gardiner's Island fishing grounds, and Plum Gut are within ten hours sail.

Southold, near the Sound, is much visited in summer for its boating, fishing and gunning. On the Long Island Road. The Southold Hotel is a good house.

West Hampton, seventy-five miles from New York, by Long Island Railroad. Wild geese and ducks commence to come in October, and remain until about the first freeze, say in December. Black ducks come in September, snipe appear the last of August, and remain until the 1st of October. Abundance of bluefish can be caught either by trolling or churning, and all other varieties of fish to be caught in these waters. Nathan Raynor's House, two miles ride from depot, can accommodate from one to eight persons. Board $1.50. Plenty of wooden decoys and tame wild geese for decoys. The surrounding neighborhood good for game. Pond for shooting within a few minutes walk of the house. The Sound in November is often covered with millions of sea birds, coots, alewifes, etc.

Sullivan County—

Sullivan and Ulster counties have been long famous for their trout streams.

First among the streams of this region, is the far-famed Beaverkill. Near the head of the Beaverkill are several small ponds, some of which contain trout, as Balsam Lake, Thomas pond, and others. Some of them also contain sunfish and bullheads.

East of the Beaverkill and parallel with it is the Willewemoc, near its head is Lake Willewemoc, famous for the size of its trout; this pond, with Balsam and Thomas ponds, belong to the Willewemoc Club, and can only be fished by permission, which however, can easily be obtained. This stream, like the Beaverkill, contains small sized trout in fair numbers. East of these rivers is the Neversink, the finest river of the whole region, although it is also the most persistently fished. It is formed by two branches that unite at Claraville, just on the line between the two counties. Either branch is a good sized trout brook, or river rather, about fifteen miles long, and they formerly contained an almost inexhaustible supply of fish; at present, however, it requires a long and patient day's work, to fill even a small basket. The west branch of the Neversink has two tributary streams, Fall Brook and Biscuit Brook, both of these contain large numbers of small trout. Northeast of the headwaters of the Neversink are the sources of the Rondout. There is near the head of the Rondout, a hamlet named Sundown.

The Big Indian, a tributary of the Esopus, rises a few hundred yards from the Neversink, and flowing eight miles through Big Indian Hollow, unites with the main stream.

North and west of the Big Indian are several streams, the best and most celebrated of which are Mill brook and Dry brook; with many smaller streams, to all of which the same description will apply; they are clear, cold mountain brooks that come tumbling over boulders and ledges, and usually contain a fair supply of small trout. Indeed, all the trout of this region, even in the larger streams, are small, from a quarter to half a pound is a good weight, anything above a half is large. Take the New York and Oswego Midland Railroad from New York to Fallsburgh, thence a drive to Dewittville, for the Neversink; and to Westfield Flats, and thence to Beaverkill, for that stream. Or drive from Shokan, on the Ulster and Delaware Railroad, eighteen miles from Rondout. The place where anglers will find the most hospitable welcome is with Bailey Beers, of Dewittville, known and beloved of many anglers, as the oddest and best of innkeepers.

Wurtsborough. Fine sport with black bass can be had in Marston Pond, near this place. Take the New York and Oswego Midland Railroad. Write to George Olcott at Wurtsboro, who will pilot and take charge of visitors.

White Lake. Pickerel, black bass and trout, with an abundance of game, are found here. Reached by stage or private conveyance from Monticello. There are seven good hotels, with several private boarding houses.

Narrowsburg. Deer, ruffed grouse and trout. Reached via the Erie Railroad. There is a hotel here.

Shin Creek, on the banks of the Beaverkill, eleven miles from Morsston Station, on the New York and Oswego Midland Railroad, is an excellent trouting centre.

Eldred. Good deer, and ruffed grouse shooting and trout fishing. Isaac M. Bradley, an old hunter, keeps a sportsman's house, and guarantees fine sport in season.

Monticello. Black and grey squirrrel shooting, with many varieties of game and excellent fishing. The route is via the Erie Railroad. There are many hotels and boarding houses here. The country about Monticello is high, yet there are no grand mountainous elevations. It is situated on what is sometimes called "a

rolling plateau," a region presenting many scenes which have been highly extolled by the poet and artist.

Pond Eddy. Deer within ten miles of here; three miles back in the mountains from Pond Eddy, next station from Port Jervis, bears. On the Erie Road.

Bloomingburgh is a good point for woodcock and grouse, with a few quail. It is reached via Middletown, on the Oswego Midland Railroad. Get out at the Tunnel, and drive half a mile to the village. Milo H. Seagar entertains sportsmen.

Susquehanna County—

Dundaff. Black bass and pickerel in Crystal Lake. Good accommodations can be found.

Tompkins County—

Ithaca. Grouse, quail and duck. Ithaca is reached via steamer or rail from Cayuga, or via the Delaware, Lackawanna and Western, and the Utica, Ithaca and Elmira roads.

Ulster County—

Rondout. Black bass fishing. On the Hudson River, reached by rail or steamer from New York.

Shokan. In the Park Swamp foxes and vixen are shot.

One of the best localities within a fair distance of New York for ruffed grouse shooting is called the Cannape. It is a large extent of wild territory situated on the northeast corner of Ulster County. Take Hudson River Railroad for Kingston, which connects with the Ulster and Delaware Railroad to Shokan, which is seventeen miles. The distance from Shokan to Watson Hollow is seven miles. Stop over night at C. Rockwell's, who will give every information and send a guide or go himself. This country is quite unknown to the sportsmen, as we firmly believe. There has never been a breech-loader or a setter within its limits. The scenery is grand in the extreme, and the berries which the ruffed grouse feed on, are very abundant. This territory is also noted for its deep mountain gorge, at the head of which is a beautiful lake, the head waters of the Bushkill creek. It has two outlets, one emptying into the Esopus creek, and the other in a directly opposite quarter, into the Susquehanna.

Bears, panthers and wild cats are found in the neighborhood. Hotel $2, private board $7 per week; guides $2; teams $5.

Lake Mohonk is located near the summit of Sky Top mountain, five and one-half miles from New Paltz, fourteen and one-half miles west of Poughkeepsie, eighty-eight miles from New York City. The lake is very deep and abounds in black bass, perch, etc. The route is via Erie Railroad and Wallkill Valley Branch. There is a hotel, with boats, etc.

Shandaken. Bears, foxes, ruffed grouse, rabbits; trout in the Esopus and other streams. Reached via the Ulster and Delaware Railroad. Board $1.50; guides $2; teams $5.

Big Indian Bears, foxes, rabbits, squirrels, woodcock, ruffed grouse. Reached via Ulster and Delaware Railroad. Board $1; teams $6.

Mount Pleasant. Bears, rabbits, squirrels, ruffed grouse; trout in the Esopus, Beaverkill and other streams. Reached via the Ulster and Delaware Railroad. Board $6 to $10 per week.

Ellenville. Excellent trouting in the vicinity. Yankee Pond is stocked with trout. Reached via the New York and Oswego Midland Railway. Board can be found in private houses, $8 per week.

Warren County—

Glens Falls. Good ground for wild ducks and geese in the spring. Go via the Delaware and Hudson Canal Company Railroad to Fort Edward, thence via Glens Falls Branch.

Lake George has always been famous for its fishing. Lake trout, speckled trout, black bass, rock bass. Reached by rail, steamboat and stage, from all directions. Hotels, guides, boats, and every convenience at hand.

Lake Pharo, a few miles west of Lake George, abounds in speckled trout.

Wayne County—

Savannah. Two and one-half miles distant is the Seneca River. In the meadows along its banks, are snipe, on the river are black ducks, coots. Savannah is on the New York Central and Hudson River Road.

Sodus Bay. Pike, pickerel and bass are caught here. Take the Rome, Watertown and Ogdensburg Railroad.

Yates County—

Penn Yan. The birds are the ruffed grouse, woodcock, quail, and wild ducks, and of fur-bearing animals, the mink, muskrat, red fox, grey squirrel, and grey rabbit are found. Hotel accommodations of an excellent character can be found at Penn Yan. The sporting club of the county is called the Forrester Club of Yates County. Penn Yan is on the Northern Central Railway. In Keuka Lake are salmon trout, whitefish, black bass, perch, pickerel, suckers, rock bass, sunfish and bullheads.

NORTH CAROLINA.

Area 50,704 square miles; population 1,071,361. The State may be divided into the coast region, the middle country and the mountain district. The coast line is much broken by sounds, numerous islands and broad bays and lagoons. The coast belt, extending across from the northern and southern boundaries, and inland eighty or one hundred miles, is a level expanse, partly sandy and covered with pine barrens, and partly marshy and swampy lands. The Great Dismal Swamp, extending into the State from Virginia on the North, and the Little Dismal lying between the sounds, are the most prominent of the numerous swamps, which, throughout the State, cover three million acres. Back of the coast region, the middle hill country gradually rises toward the west, until it merges into the mountains of the Alleghany Range. Throughout the State from the marsh to the mountain, the sportsman will find game of all the varieties common to the Southern States. Railroad and steamboat travel are supplemented by the saddle horse, a mode of travel much more in vogue among the people of the South than in any other part of the country. Hotels are not always to be found, but where these are lacking the visitor will find such entertainment as the country affords, proffered with characteristic hospitality.

Bertie County—

The Chowan and Roanoke Rivers, with Albemarle Sound, are excellent shooting grounds for geese, swan, brant and ducks. The shooting grounds are accessible by boat or yacht from Colesdam, Ashland or Merry Hill.

Brunswick County—

Smithville. See Wilmington.

Buncombe and the Adjoining Counties—

That portion of the State lying west and north of the Blue Ridge, and south of the Alleghanies, is known as western North Carolina. It is about one hundred and seventy-five miles in length, with an average breadth of seventy-five miles. It embraces sixteen counties, about seven thousand square miles.

The valleys have an average elevation of two thousand feet, and are generally well studded with farms and hamlets, but the mountains are, and for centuries to come will remain, wildernesses. In them game is abundant, but in the settlements it is growing scarce, owing to the indifference of the people and lawmakers, on the subject of game laws.

The valleys have each their principal stream taking its rise in the northern slope of the Blue Ridge, and flowing in a northerly course through the Alleghanies into the Tennessee Valley. All of these streams are pretty well supplied with fish. In some they are very abundant, the pike and black bass of the south, both very gamy, being the most desirable. But it is the headwaters and tributaries of these rivers, where the joy of the angler's heart—the speckled trout—is to be found in untold numbers. They are not large, seldom exceeding eighteen inches in length, and averaging not more than nine; but their great number compensates for their size.

Asheville is well situated for a starting point, being, geographically, in the centre of the region. From New York, or any of the New England or Eastern States, the best route is via Richmond, Danville, Salisbury to Old Fort, by rail, thence across the ridge twenty-four miles by stage, a daily line connecting with railroad. From northwest via Louisville, Nashville, Knoxville to Wolf Creek, thence by stage forty-four miles—a daily line. From the south, either one of the routes mentioned will be found convenient.

Burke County—

Morganton. Quail, woodcock, rabbits, rail, deer, and other game in the vicinity, with good trout fishing in nearly all the mountain streams in Burke County and vicinity. Reached via the Piedmont Air Line to Salisbury, thence via the Western North Carolina Railroad. From the middle of May till the last of June is the season. For information, write to R. L. Patton, Morganton. The country is hilly and mountainous.

Carteret County—

Beaufort and Vicinity. Canada geese, brant, canvas-backs, redheads, black, and other varieties of duck, bay birds, curlew, robin snipe, marlin, godwits, quail; excellent trolling for bluefish. Reached via the North Carolina Railroad from New Berne to Morehead City, thence steamer, or via steamer from New York or Baltimore. See New Berne. Carteret County is level swamp lands and pine forests.

Chowan County—

Edenton. The Chowan River and Albemarle Sound are the feeding grounds of great numbers of swan, geese, brant and ducks, and are splendid fishing grounds for a variety of valuable and gamy fish. Reached by steamers which ply on the sound and river. The surrounding country is level.

Clay County—

Hayesville. The Hurricane Branch, and the Little Hurricane Branch, are good trout streams.

Columbus County—

Flemington is seventeen miles from Wilmington, on the Wilmington, Columbia and Augusta Railroad. There is excellent fishing and shooting on Lake Waccamaw. Good accommodations can be obtained.

Craven County—

New Berne is easily reached from New York by rail or by water direct, or by water via Baltimore and Norfolk steamers. To go to the lake region, take the cars at New Berne, on the Atlantic and North Carolina Railroad, for Havelock Station, sixteen miles distant. In the vicinity of Havelock Station is a heavily wooded country, vast pine uplands, and swamps where gum, maple, and other trees grow in dense profusion. Five miles from the station is Lake Ellis, a round lake of about three miles in diameter, and nearly connected with it are four or five other sheets of water. Some of these lakes are open water; others are grown up, like Lake Ellis, with grass, through which a punt can be easily pushed. These lakes are the resort of thousands of wild geese, black ducks, and mallards, very few of any other kind being found there. The dry swamp known as Long Lake, to the south and west of the above chain of ponds, is an excellent place to hunt for bears, panthers and wild cats. The pine ridges in that vicinity offer excellent deer hunting. As but few persons about New Berne hunt in these forests, there are but few guides to be had. Sailing down the Neuse River from New Berne, the yachtsman will pass several good shooting points, one of which—Slocum's Creek, about eighteen miles from the city—is a resort for various species of ducks. In those woods colored guides can be had for 75 cents to $1 per day, finding

themselves in provisions. Black ducks and Canada geese are found in large numbers.

Proceeding down the Neuse River, the sportsman can have the choice of shooting in Pamlico and Cove Sounds, at Harbor Island, Hunting Quarters, and various other points, twenty miles apart. There is no restriction as to fire hunting. There are no "points" held by private parties. The hunting and shooting grounds ashore and on the water are free to any one who may choose to visit this part of North Carolina.

The fishing about New Berne is of great variety and excellence, including trout, drum, bluefish and other varieties.

Currituck County—

The grounds of the "*Currituck Shooting and Fishing Club*," are forty miles south of Norfolk, Virginia, and include Deal's Islands and adjacent marshes. Steamers run regularly from Norfolk to Knott's Island, which is three miles distant from the Club grounds. White swans, geese, ducks, etc., congregate here in great numbers.

The club property runs from the Virginia line southerly about three and a half miles, and from the Atlantic Ocean (not including the sand hills) westerly about one and a half miles, being separated from the main land by one or two marsh islands, and distant about one-quarter of a mile.

Those desiring to shoot quail can be satisfied to their hearts' content, by going on the main land. A couple of dollars paid to the owners of these lands, will afford immunity to the upland gunner for an indefinite period. In addition to the wild-fowl already mentioned, there are jack snipe and coons in great numbers among the marshes, and some good upland shooting on the two hundred acres of high grounds belonging to the club. The route is via Norfolk, rail or Old Dominion Line of Steamers. Sportsmen can go to the club-house where decoys, boats, gunners, and board will be furnished at the rate of $2.50 per day.

Poplar Branch is a headquarters for sportsmen. Ducks, widgeons, sprigtails, black and mallards, geese, snipe, partridges and other varieties of game furnish abundant sport, while coon hunting is to be had in the vicinity. The route is as above to Norfolk, Va., thence via river steamer. Board can be obtained at Van Sleyck's or D. W. Linsey's, $2 per day; gunners $3; boats, etc., at reasonable rates.

Knott's Island and Currituck Sound. Between the headwaters of Currituck Sound, otherwise known as the Back Bay, and the outside ocean beach is a desolate sand flat, known to residents and to sportsmen as "The Sand." This almost desert extends north and south a dozen or more miles in length, ranging in width from half a mile to two or three, and its inner edge, from Chesapeake Bay along the sounds and creeks that indent the coast to Currituck inlet, is the great resort and feeding ground of various species of ducks, comprising canvas-back, black duck, widgeon, sprig-tail, teal, red-head, broad bill, etc., also geese and swans in profusion. Route as above via Norfolk steamers. Time from New York, thirty hours; fare for round trip $24. Cost per day for man, decoys, skiffs and marshes $5. Season lasts till Feb. 15th. Board at J. White's $1.50.

Davidson County—

Thomasville. Wild turkeys and other game in the vicinity. Reached via Richmond and Danville Railroad. The surface of the county is diversified by hills and valleys.

Granville County—

Kittrell. Quail in abundance. Reached in thirty hours from New York via Baltimore; steamer to Portsmouth; Seaboard and Roanoke Railroad to Weldon; Raleigh and Gaston Railroad to Kittrell. Good hotel accommodations at Colonel Davis's house. Horses and wagons furnished at the hotel. The surface of the county is undulating and hilly.

Guilford County—

Greensborough. Good quail shooting with a variety of game in the surrounding country. Reached via the Piedmont Air Line Railroad, one hundred and eighty miles from Richmond. The surface of the county is undulating and in many portions covered by dense forests.

Halifax County—

Weldon is a good centre for the sportsman. Deer, wild turkeys and quail are

abundant in the vicinity. The game is so near one can start in the morning after breakfast from the hotel and return to a four o'clock dinner, with the certainty of seeing at least one deer, and generally of bringing one in. Twenty miles down the Roanoke River they are more abundant still, but one has no need to go so far.

For wild turkeys the ground down the Roanoke, or on the other side opposite Weldon, is better. The surrounding country can be easily reached from Weldon, either by rail or the Roanoke River. On the latter are two lines of boats which make trips down the river about twice a week. A party can take a cook and servants, and all the necessaries from the Weldon Hotel. A stay of a week would be rewarded by many deer, and wild turkeys in abundance.

A boat is a necessity to enable sportsmen to hunt either side of the river. There are several small places on the Roanoke where one can be accommodated, and from which daily excursions can be made. Weldon is easily accessible by rail. Leaving New York City, via the Pennsylvania road at 3 P. M., Weldon is reached in time for breakfast the next day. The Weldon Hotel is a favorite house with sportsmen. An introduction from its proprietors, Messrs. McLaurie and Russell, secures in the neighborhood every attention and facility for hunting.

Halifax. Deer and small game are abundant within a short distance from the town. Reached via the Wilmington and Weldon Railroad, and by river steamer. Good accommodations can be secured for $1.50 and $2 per day; teams $2; guides 75 cents.

Haywood County--

Mt. Sterling. The Big, Catalouche, and Jonathan's Creeks, tributaries of the Big Pigeon River, are excellent trout streams. Reached via East Tennessee, Virginia and Georgia Railroad to Morristown, thence via Cincinnati, Cumberland Gap and Charleston Railroad to Clifton, thence by good turnpike thirty-four miles to Mt. Sterling. Stop with B. P. Hopkins. Country mountainous.

McDowell County—

Marion is a small village among the mountains and in an excellent quail country, with good trout fishing in the streams. The route is via the Western North Carolina Railroad.

Mitchell County--

Black Mountain. This region is quite famous for bears, and there are deer, ruffed grouse, wild turkeys, squirrels, and speckled trout. Go to Johnson's City, Tenn., via the East Tennessee Virginia and Georgia Railroad.

Moore County—

Caledonia, on the Roanoke, ten miles from Halifax, is an excellent centre for deer and small game. Expenses about the same as those of Halifax. Excellent shooting all along the Roanoke River in this vicinity.

New Hanover County—

Wilmington. On the Cape Fear River below Wilmington, and in the vicinity of Smithville is good swan, goose, brant, duck and snipe shooting. Reached via the Carolina Central, the Wilmington Columbia and Augusta, or the Wilmington and Weldon Railroads, also by boats from New York. The surrounding country is level.

Northampton County—

Garysburgh is a good place for the sportsman to stop, and is three miles from Weldon on the railroad to Norfolk. The proprietor of the hotel, W. P. Kee, knows all the best stands for deer, and where every gang of turkeys works around him. He owns the hunting privilege on about ten thousand acres of land, and makes it his business during the winter months to hunt with sportsmen, or alone. See Weldon.

Pitt County—

The Tar River, flowing through Pitt and Beaufort Counties and emptying into Pamlico Sound, is the resort of thousands of geese, swan, ducks, brant, etc. Reached by boat from Pamlico Sound, or via Tarborough.

Richmond County—

Laurinburgh. Deer, wild turkeys and other game in abundance. Reached via the Carolina Central Railroad. No good hotel. The surface of the country is undulating.

Stokes County—

Big Creek. A variety of fishing and hunting in the surrounding country. Stop at B. P. Hopkins'. Reached by drive from Greensboro. The country is hilly.

Warren County—

Manson is an excellent quail locality. Go via the Raleigh and Gaston Railroad.

OHIO.

The surface of Ohio, extending over an area of 39,946 square miles, is a plateau which reaches its greatest elevation in Logan County. There is a ridge of highlands north of the middle of the State which forms the water ridge, which with a second ridge, south of this, are the only ones worthy of mention. The surface is farther diversified by the deeply eroded river valleys, with their high bluffs, and by numerous stretches of forest land. The State was once the range of much large game, which has now, however, almost entirely disappeared. The sport is therefore confined to bird shooting, and fishing.

Auglaize County—

Saint Mary's. The Reservoir, an artificial sheet of water, containing seventeen thousand acres, built as a feeder, affords as fine wild fowl shooting as can be found in the State. Take the Dayton and Michigan Railway to Wapakonetta, thence wagon.

Ashtabula County—

Jefferson. In this vicinity are found squirrels, quail, woodcock, rabbits, very plenty, red foxes, wild turkeys and deer. Take Franklin Division of the Lake Shore and Michigan Southern.

Ashtabula. Snipe, ruffed grouse, woodcock, wild turkey. Reached via the Lake Shore Railroad.

Conneaut. Excellent fishing in Lake Erie and in the Conneaut River, for bass, pike, perch, whitefish, and maskalonge in the river. Good shooting for ducks, squirrels, and partridges. Conneaut is on the Lake Shore and Michigan Southern Railroad, twenty-eight miles west from Erie, Penn.

Lenox. Quail, ruffed grouse, wild pigeons, wild turkeys, grey and black squirrels.

Belmont County—

Bellaire. Good quail shooting in the Ohio River bottoms. Reached via Baltimore and Ohio, or Cleveland and Pittsburg Railroad.

Columbiana County—

East Liverpool. Quail and ruffed grouse are numerous. Take the Cleveland and Pittsburg Railroad.

New Lisbon. Black bass, quail and grouse abundant. Take the Atlantic and Great Western Railway from Cleveland to Niles, thence Niles and New Lisbon Branch.

Cuyahoga County—

Cleveland. The Hones Point Club, of Cleveland, has one of the finest ducking grounds on Lake Erie, and the ducking season commences on the 1st of September. The rendezvous is only a hundred miles from Cleveland, and ducks are plentiful.

Defiance County—

Rabbits are abundant, and of good quality throughout the county. Stop at any of the stations on the line of the Baltimore and Ohio, or the Toledo, Wabash and Western Railroads.

Delaware County—

Lewis Center. Quail and turkeys. Reached via the Cleveland, Columbus, Cincinnati and Indianapolis Railroad, sixteen miles from Columbus. No hotels, though board can be obtained in the village.

Erie County—

Sandusky. Good duck shooting on the marshes. Reached via the Lake Shore and Michigan Southern, the Baltimore and Ohio, or the Cincinnati, Sandusky and Cleveland Railroad.

Kelley's Island, in Lake Erie, is the headquarters for black bass anglers, from Cincinnati, Covington, Pittsburg, Columbus and Cleveland, and may be reached by boat from Sandusky or Cleveland. Hotel accommodations at Jacob Rush's house, $2 per day.

Put-in-Bay and Point au Pelee Islands, are also favorite resorts. Point au Pelee, about twenty-five miles from Sandusky, and just across Uncle Sam's boundary, is a locality that cannot be excelled for its black bass fishing. It is accessible easily from Buffalo, Cleveland and Sandusky. Hotel accommodation is poor, but the camping ground is superb. Minnows are used for bait, and the bass are not known to take the fly except by trolling. If desired, splendid accommodations can be had at Put-in-Bay, fourteen miles distant, and a steam tug will take you to and from the fishing ground each day. We are rather inclined to recommend this place to the luxurious angler who does not care to rough it in the bush, for superior fishing is rarely found in connection with the comforts of civilization. Moreover, splendid duck shooting can be enjoyed here in the fall, as there are about five thousand acres of marsh land covered with wild rice, upon which the mallard feed, and any bungler can bag from ten to twenty of an afternoon. There is also fox hunting, if the sportsman will only bring his hounds, for the island is full of red foxes. The best time for an excursion is the middle of the months of May and September. Taken all in all, the Point au Pelee is exceptionally attractive. The South Side Dock is the best place to go to; better accommodations, but you have to fish in boats. The best point to obtain men is at Put-in-Bay. West Dock is the best part for ducking and fishing combined, as you are near the marsh. For information, address Robert McCormick, Kingsville, Ontario, Canada, the nearest post office for South Side; Walter Grubb, or Dr. McCormick, Kelley's Island, Ohio.

Huron County—

The extensive marshes surrounding the Great Pigeon Roost in the Western part of this county, accessible from Attica, on the Baltimore and Ohio Railroad, is a grand shooting place for ducks, mallards, shovelers, pintails, redheads and teal.

Jackson County—

Byer's Station. Rabbits, pheasants, and quail. The country is too hilly and the brush too thick and high for successful hunting.

Licking County—

Newark. Situated about ten miles from this city is the Licking Reservoir, a noted place of resort for sportsmen in this vicinity, as well as abroad. This reservoir is a sheet of water covering about five to six thousand acres, abounding in good fishing and hunting. Black bass, pickerel, sunfish, and Lake Erie bass, wild ducks and quail are found in this locality. There are three hotels; cost of board from $1.50 to $2 per day. Boats at all of these places for 50 cents per day; man to row for $2. It is reached from Newark by rail for 25 cents, or by team for $3 per day. Fishing season, April, May and June—best in last two months. Hunting from October 1st through the fall. Rolling country. One hotel is located on the line of the Newark, Somerset and Straitsville Railroad; other hotels reached by teams; they are kept open the year through. Newark is on the Baltimore and Ohio, and the Pittsburg, Cincinnati and St Louis Railroads.

Logan County—

Huntsville. Duck, snipe and quail shooting excellent at the Reservoir. Take

the Cincinnati, Sandusky and Cleveland Railroad, seventy one miles from Cleveland, or the Pittsburg, Fort Wayne and Chicago Railroad. Going from Pittsburg take the latter railroad at Forest, and change cars to Cincinnati, Sandusky and Dayton Railroad to Huntsville thence a ride of five miles to the Reservoir. Inquire for William Hornberger. Board $1; boats and guides to be had.

Medina County—

Medina. Ruffed grouse, quail, woodcock, mallard, teal and wood-ducks. Black bass are abundant in a lake four miles from town. Reached via the L. S. and T. V. Railroad.

Chippewa Lake. Quail, woodcock, ducks; black and spotted bass at Chippewa Lake. Reached via the Cleveland, Tuscarawas Valley and Wheeling Railroad. Private board $1 per day; teams $5. Country rolling.

Perry County—

Somerset. Quail and ruffed grouse abundant. Reached via the Baltimore and Ohio Railroad. Good hotel accommodations at moderate prices.

Seneca County—

Republic. Squirrel shooting is good in the vicinity. Reached via the Baltimore and Ohio Railroad.

Tiffin. Deer, turkeys and ruffed grouse are found in the "Big Woods." Quail are plenty in the vicinity. Tiffin is reached via the Baltimore and Ohio, the Cincinnati, Sandusky and Cleveland, or the Mansfield, Coldwater and Lake Michigan Railroads.

Stark County—

Alliance. Foxes are numerous in winter, quail, ruffed grouse; black bass, pike, ranging in weight from one to five pounds. Reached via the Cleveland and Pittsburg, and the Pittsburg, Fort Wayne and Chicago Railroads.

Summit County—

Hudson. Woodcock, snipe, sora, Carolina and Virginia rail, pigeons at times in great quantities. Reached via the Cleveland and Pittsburg, or the Cleveland, Mount Vernon and Columbus Railroad.

Macedonia Depot. Ducks, geese, ruffed grouse, woodcock, snipe. Shooting grounds, Riley's Lake and Cuyahoga River. Reached via Cleveland and Pittsburg Railroad, twenty miles from Cleveland. Hotel and private board, $1 per day; boats to be hired.

Tuscarawas County—

New Philadelphia. Quail, woodcock, etc.; fishing in the Tuscarawas River. Reached via the Cleveland, Tuscarawas and Wheeling Railroad.

Williams County—

Bryan. The "big woods," afford good deer hunting. Take the Lake Shore and Michigan Southern Railroad.

Wood County—

Tontogany. In the rapids of the Maumee River, two miles from here, excellent rock and black bass fishing. Take the Dayton and Michigan Railroad, distance from Toledo, twenty-two miles. Boats and boatmen on hand. Fly fishing in May and June, after that time minnows for bait.

OREGON.

The State of Oregon embraces an area of 95,274 square miles, and is the least populated territory in the United States, the

population being confined almost exclusively to the Willamette Valley. The Cascade Mountains, in the centre, divide the State and with other ranges give to the surface distinctively a mountainous character. Deep canons, snow-capped mountains and rapid dashing streams are the striking physical features of Oregon. The game of the Pacific slope is found in abundance through the State: grizzly and black bears, panthers, wild cats, grey wolves, coyotes, mountain sheep, elk, black-tail deer, antelope, swans, geese, brant, and other varieties of animals and birds. The rivers and streams abound in salmon, cod, halibut, sturgeon, herring, smelts, etc., and these fisheries constitute one of the most important industries of the State.

Clatsop County—

Astoria. Clatsop Beach is a favorite summer resort. The game comprises deer, elk, black bears, grouse, doves and quail. Reached via the Pacific Coast line of steamers from San Francisco. For other routes see Jacksonville, Jackson County. Board at the hotel $15 per week.

Jackson County—

Jacksonville. In the mountains are deer, bears, elk, and other game, rabbits in the fields, and fine trouting in the streams. A favorite resort for Jacksonville people is Volcano Lake in the Cascade Mountains.

To this part of Oregon there are three routes. The first is to leave the cars at Kelton, Utah, and take the stage through the artemisia plains of Idaho, and the bunch-grass plateaus of Washington Territory; the next is to go by rail to San Francisco, thence take the steamer north; and the third is to pass through California overland by stage and rail, and enter Oregon from the south. The former is the most tedious; the next the most comfortable, and the third the most interesting.

Josephine County—

Grave Creek. Bears, deer and panthers numerous; mountain trout. Fifty-four miles from Roseburg, the southern terminus of the Oregon and California Railroad. Daily stage connection. Board $7 per week. Mountainous country.

Union County—

La Grande. Bears, deer, elk, mountain sheep, jack rabbits, geese, ducks, sage hens; pinnated and ruffed grouse; salmon, mountain trout. La Grande is four hundred miles from Kelton, on the Central Pacific Railroad. Board 75 cents to $1. A valley surrounded by undulating prairies, and heavily timbered mountains.

PENNSYLVANIA.

This State, embracing an area of 43,000 square miles, presents a great variety of surface. The eastern and central parts are traversed by parallel ranges of the Appalachian Chain which here attains a width of two hundred miles. The western sections of the State are broken and hilly. The mountain regions are covered by extensive forest lands which are the abode of much large game, and where are to be found some of the most picturesque trouting streams in the world. The natural attractions of these regions, the numerous

and well appointed railroads and highways, rendering them easy of access from the great cities, and the comfortable accommodations usually found in summer, all conspire to place the mountain counties of Pennsylvania among the most popular sportsmen's resorts of the Middle States.

Allegheny County—

Clinton. At the junction of Conequenessing Creek and Beaver Creek near Clinton, is a good hotel for sportsmen. Quail, grouse and squirrels are there found. On the Erie and Pittsburg and the Pittsburg, Fort Wayne and Chicago Railroads.

Armstrong County—

Leechburgh. Quail, partridge, squirrels; bass, pike. Reached via the Pennsylvania Railroad. Board $1 per day, $5 per week; teams $3 per day.

Oakland. Good trout fishing. Reached same as Henryville, above.

Beaver County—

New Brighton. Woodcock and ruffed grouse. Reached via the Pittsburg, Fort Wayne and Chicago Railroad.

Baden. Grey squirrels, hares and partridges, especially abundant in the vicinity of Raccoon Creek. Reached via the Pittsburg, Fort Wayne and Chicago Railroad.

Bedford County—

Bedford. Deer, wild turkeys, ruffed grouse, quail, woodcock, trout, black bass. Reached via the Pennsylvania, or Huntingdon and Broad Top Railroads. Hotels. Country mountainous.

Woodbury. Good snipe shooting on the meadows.

Hopewell. Grouse and pheasants. Take the Pennsylvania Railroad to Huntingdon, thence via the Huntingdon and Broad Top Road.

Berks County—

Hamburg. Rabbits, wild pigeons, turkeys, pheasants, partridges, quail, etc., afford good shooting. Hamburg is on the Philadelphia and Reading Railroad.

Reading. Black bass fishing in the Delaware from here to Manayunk, especially good at Flat Rock Dam.

Albany. Blue Mountain is an excellent hunting ground for wildcats, deer, foxes and grouse.

Blair County—

Altoona is at the base of the Alleghany Mountains. Bears, deer, wild turkeys, pigeons, partridges, squirrels, and other game are found in the mountains, while the streams abound in trout. Reached via the Pennsylvania Railroad. There are good hotels $2 to $3.50; guides $2 to $3. The Bells Gap Run, and Kittanning Point are favorite camping grounds.

Williamsburgh. Bear, deer, wild turkey, partridge, woodcock, squirrel; trout, pike and black bass. Reached via the Pennsylvania Railroad. Hotel $5 per week; teams $1.50 to $2 per day. Mountainous country.

Hollidaysburgh. Black bass and ducks are quite plentiful in the old canal reservoir. Deer, rabbits and other game in the vicinity. Reached via the Pennsylvania Railroad.

Tyrone. Deer, ruffed grouse, quail and woodcock. Six miles out on the Clearfield Railroad is the best locality for trout. Reached via the Pennsylvania Railroad. The City Hotel $1.50 per day, private board $5 per week; guides $1.50 to $2 per day. The country mountainous and well suited to camping out.

At Munson's Cove, fifteen miles south of the Martinsburg branch of the Pennsylvania Railroad, are found partridges, pheasants and woodcock.

Bradford County—

Towanda. Good quail and grouse shooting. Take the Lehigh Valley Road.

Bucks County—

Riegelsville. Excellent black bass fishing in the Delaware. Reached by the New Jersey Central Railroad to Easton, and thence eight miles down the Belvi-

dere-Delaware Railroad, or by the Pennsylvania Railroad to Trenton, and thence up the Belvidere-Delaware Railroad.

Quakertown. Rabbits, squirrels, pheasants, partridges, woodcock. Reached via the North Pennsylvania, or the Pittsburg, Fort Wayne and Chicago Railroad.

Sellersville. Quail, ruffed grouse, woodcock. The country is directly in the line of the migratory woodcock. Take the North Pennsylvania, a ride of thirty-one miles from Philadelphia.

Mount Pleasant. See Mount Pleasant, New Jersey.

New Hope. Black bass fishing in the Delaware River. .

Butler County—

Butler. Wild ducks, geese, partridges, quail, squirrels and black bass. Reached via the Pennsylvania Railroad. Board $1 to $2 per day, $5 to $10 per week. Country hilly and rolling.

Cambria County—

Conemaugh. Ducks are abundant in season. Reached via the Pennsylvania Railroad.

Ebensburgh. Panthers, wildcats, bears, deer, foxes; turkeys, ruffed grouse; trout. Reached via the Ebensburg branch of Pennsylvania Railroad. Hotels and private board, 50 cents to $2. Mountainous country.

Cameron County—

Emporium. Trout in Potter, McKean, Cameron and Clinton Counties are found in fair quantity in the small tributaries of the large streams, such as Pine, Kettle and Driftwood Creeks, which are near the head waters of the Sinnamahoning River. Emporium is a good point to start from; the route is by the Philadelphia and Erie Railroad. These counties are the best in the State for hunting and fishing. Hotel board, $2; guides $1.50, and found; teams $3 to $5. Provide camping outfit. The country is hilly.

Sinnamahoning. Deer, bears, foxes, wolves, grouse, with trout fishing. Reached via the Philadelphia and Erie Railroad. A comfortable hotel is kept by J. M. Shaffer, $1.50. A fine pack of hounds, with guide, teams etc., can here be found, $5 per day. The country is broken into narrow defiles and steep ridges, and the prevailing mode of deer hunting is to drive with dogs.

Carbon County—

Penn Haven. Stony Creek, accessible from this point, is a famous trouting stream. Take the Lehigh Valley Railroad. In Carbon, Luzerne and Sullivan Counties are extensive forests of hemlock, spruce and pine in which deer, bear, etc., are still found in large numbers. The swamps and lakes, of which there are many, afford good sport. Ruffed grouse, quail, etc., are quite plenty.

Centre County—

Philipsburgh, among the Alleghany Mountains, is a good centre for bear and deer hunting and trout fishing. Reached via the Pennsylvania, and Allegheny Valley Railroads. Hotel, $2; guides $2. Provide camping outfit.

Bellefonte. Deer, ruffed grouse; trout. Reached via the Pennsylvania Railroad. Board at hotel or private house, $2.50 per week. The Seven Mountains and other well known hunting and fishing resorts are easily accessible.

Chester County—

Phœnixville. Good black bass fishing. Reached via the Reading Railroad.

Pennington. Ruffed grouse, quail, woodcock, trout. Reached via the Pennsylvania Railroad. Hotels $2; private board $1.50; teams $3 to $4. Hilly country.

Clearfield County—

Curwinsville. Black bass are caught in the river. The Susquehanna River bottoms are good grounds for deer.

Clearfield. Deer, an occasional bear, ruffed grouse, quail, trout in the mountain streams, and black bass in Clearfield Creek. Reached via the Pennsylvania Railroad. Board at the hotels $2 to $3, guides at reasonable rates, and log lodges for sportsmen in the hunting and fishing regions.

Clinton County—

Lock Haven, among the Alleghenies, is a summer resort much frequented for its scenery and the fine fishing and shooting found in the neighborhood. In all the streams to the northwest trout are plenty. Reached via the Philadelphia and Erie Railroad. Good summer hotels.

Hyner and Renovo, on the Philadelphia and Erie Division of the Pennsylvania Railroad, are in the midst of the great pine forest regions of Northern Pennsylvania. The woods all about abound in game, the streams in brook trout and other varieties. The Susquehanna alone has thirty-one varieties. Near Hyner is Young Woman's Town, which has the wildest, crookedest stream of the same name. Kettle Creek is another very beautiful and romantic stream. The Short Bend on this stream is a lovely spot, not far from where the Susquehanna turns around the corner of a mountain. If you follow any one of these streams into the forest you will have ample use for both rod and gun. You can return to Renovo by a little branch of Kettle Creek, or, you may follow the winding of this favorite stream up past Beaver's Dam, Spicewood River, Trout Fork, and Ox Bow Bend, to Cross Fork P. O., and return by Paddy's Run through Tamarach Swamp in almost a direct line to Renovo. The whole surface in this vicinity is deeply seamed with narrow valleys and ravines spreading in every direction, and marking out the innumerable water-courses. Steep walls of massive rock rise up to lofty heights, supporting the broad table-land, which is crowned with mountains of dense forests, and stretches far out toward the sea into five points, called the Finger Mountains, of which Mahoopany, Tonawanda, and Blossburg are the most important.

Renovo is much visited in summer by sportsmen and pleasure seekers. There are good hotels and other accommodations here.

Young Woman's Town. Excellent trout fishing in the neighboring creeks, with game in the woods. Take the Philadelphia and Erie Division of the Pennsylvania Railroad. Guides are necessary and can be obtained.

Columbia County—

Bloomsburgh. There is a good locality about twenty miles from Bloomsburgh, and within four miles of Rickett's Long Pond Hotel, with board in private family at $7 per week. Bloomsburgh is reached by Philadelphia and Reading Railroad or Delaware, Lackawanna and Western Railroad. Address John Gibbs, Bloomsburgh.

Crawford County—

Evansburgh. Conneaut Lake contains fine black bass. Reached via the Atlantic and Great Western Railroad, or via the Erie and Pittsburg road to Transfer Junction, thence carriage two miles. Accommodations will be found at the Lake House, or go to old Phil Miller's; board $2.

Atlantic. Grouse, quail, rabbits, and other game. Reached via the Atlantic and Great Western Railroad.

Centreville. The Slippery Rock waters, are famed for the abundance of pike found there. The stream for ten miles is one succession of dams, all of them broad and deep. There are many ducks and geese, and in the woods are squirrels, hares and all varieties of small game. The route is via the Atlantic and Great Western Road to Shenango Junction, thence via the Shenango and Allegheny Road to Centerville Station, twenty-five miles. Sportsmen will find the best of accommodations with Mr. John Keuster, whose house is three miles from the depot.

Cumberland County—

Newville. Excellent trout fishing all around here. Reached via the Cumberland Valley Railroad. Good hotels.

Shippensburgh. Wild turkeys on the North Mountain. Reached via the Cumberland Valley Railroad, forty-one miles from Harrisburg.

Dauphin County—

Dauphin. Excellent bass fishing in the Susquehanna is found all along the river, from Dauphin to Clark's Ferry. Dauphin is on the Philadelphia and Reading, the Northern Central, and the Pennsylvania Railroads.

Middletown. Ducks, partridges, quail, squirrels; black bass. Reached via the Pennsylvania Railroad. Hotels $1.50 to $2; boats and boatmen $1.50. Country hilly and mountainous. Fine place for bass is *Collin's Station*, and for small game *Hillsdale*, Indiana County, and *Conewago*, Lancaster County.

Harrisburgh. Deer hunting in the vicinity of Lykens, Williamstown, and Grotz, Peters, Berry, and Short Mountains, and up the Juniata in the Black Log, Tuscarora and Bald Eagle Mountains. Cox's Island in the Susquehanna, four miles, is a famous resort for duck slayers during the fall and winter, and for shad-seining in the spring. Wild turkeys are found in the valley skirting the Kittatinny, Roberts, and Peters mountains in Fishing Creek, Stony Creek, Clark's and Powell's Valley.

Quail and woodcock are found within a few miles of the city. The farmers are pretty strict, however, and forbid their killing, except for a money equivalent.

York Hills, eight miles below the city, is a fair locality for rabbits, grey squirrels and woodcock. Up the river, on the flats opposite McCormick's Island, plover of the yellow legged variety are found in great numbers along the marshy grounds on the Eastern Shore of Maryland and Northern Virginia.

Jack-snipe may occasionally be shot along the river. Their feeding grounds being principally along the marshy creeks and rivulets emptying into the river, and on the edges of the grassy flats when the river is low. Swans, wild geese, and wild ducks are shot above the city. Canvas-backs, red-necks, black, mallards, etc.

Black bass in the Susquehanna and its tributaries. Blue Mountain is a great resort for shooting grey and red squirrels, foxes, minks and weasels. A few partridges are found there. Reached via the Pennsylvania, the Philadelphia and Reading, and other railroads.

Delaware County—

Chester, the Lazaretto and Marcus Hook, are much visited by Philadelphia sportsmen, for their excellent rail and reed bird shooting. These places are on the Philadelphia, Wilmington and Baltimore Railroad. The Lazaretto is eleven miles from Philadelphia. Chester, fourteen miles has several hotels, and at Marcus Hook, or Linwood Station, as it is now called, accommodations may be secured.

In order to have the best show for a shoot, it will be better to secure a pusher, which can always be done by application at the gun stores of Mr. John Krider, corner of Second and Walnut streets, or Mr. Abraham Peterman, in Dock Street above Walnut, Philadelphia. As this kind of shooting is done altogether from a clean, dry boat, the shooter requires no special change of clothing.

By taking the through Washington train in the afternoon from New York, sportsmen can be landed at Chester before midnight, and by looking at any Philadelphia paper can learn at what time it will be high water on the days they wish to shoot, always rating the tide forty minutes earlier at Lazaretto than at the navy yard at Philadelphia, where the record is made.

English snipe shooting can be had at these points, and one can alternate his sport by taking one day with the rail, and the next with snipe. At Marcus Hook, good ducking is to be had in season.

Elk County—

Ridgway. Deer are very abundant; one of the best shooting grounds in the country; bears, wolves, panthers, foxes; trout in Clarion River and tributary streams. Reached via the Philadelphia and Erie Division of the Pennsylvania Railroad. Hotel $5.50 per week; guides $2 per day; teams $3.50. Provide camping outfit. Mountainous country.

Trout, Straight's and Clarion Creeks, with all the tributaries of the Clarion River, in this county, are good fishing streams.

Wilcox. Deer, ruffed grouse; trout in the west branch of the Clarion River. Reached via the Philadelphia and Erie Railroad. Board $1 to $3; teams $5; guides procured at moderate rates. Country hilly.

St. Mary's. Deer, ruffed grouse; trout. Reached via Philadelphia and Erie Railroad. Hotels, $2.50 per day.

Erie County—

Erie. The harbor affords excellent fishing in summer, Presque Island which forms it being full of small lakes and ponds in which the fish spawn. The summer sport comprises the mascalonge, pike, black bass. Perch and herring are caught in winter. In May and June a fish called blue pickerel is caught in thousands with hand lines from a boat anchored over what are called the Banks. They run from fifteen to twenty inches in length, and are very greedy, taking the

bait almost as soon as it strikes the water. In the spring and fall ducks are plenty, and snipe, plover, rabbits, etc., in abundance.

Fayette County—

Brownsville is reached from Connellsville, and the game is essentially the same. There is a hotel where sportsmen will find comfortable quarters.

Uniontown. "Good quail and grouse shooting. Stop at Frey's "McClelland House." Guides and dogs can be obtained. Reached via Pittsburg, Washington and Baltimore Railroad to Connellsville, thence by the Uniontown Branch road.

Connellsville. Chestnut Ridge and Indian Creek Valley and Laurel Hill, abound in bears, deer, foxes, squirrels, wild turkeys, pheasants and quail. The rolling country west of the town is fine hunting ground for small game. Trout, pike, salmon, bass, white perch and sunfish are caught in the neighborhood. Trout are found in all the streams of the county tributary to the Monongahela River. Reached via the Pennsylvania or Philadelphia, Wilmington and Baltimore Railroad. Hotels and liveries. Guides unnecessary; can be secured for $1 or $1.50 per day.

Waterford Lake, near Waterford, is an excellent place for large pike fishing. The fish here are of great size and afford rare sport. Take the Pennsylvania Railroad.

Albion. Pickerel fishing in the Conneaut. Reached via the Erie and Pittsburg Railroad.

Forest County—

Tionesta. In neighboring woods deer are abundant, and there is excellent quail shooting in the vicinity. Reached via the Pittsburg, Titusville and Buffalo Railroad.

Franklin County—

Chambersburg. Bass fishing in the Conococheague Creek. Reached via the Cumberland Valley Railroad. There are good hotels.

Fulton County—

Bear and deer hunting are good in the vicinity. Reached via private conveyance, or tramp from Chambersburg, on the Cumberland Valley Railroad.

Greene County—

Waynesburg is an excellent ground for ruffled grouse and Wilson snipe. A farming town on the Waynesburg Branch of the Pittsburg and Reading Railroad.

Huntingdon County—

Mount Union Bears, deer, wild turkeys; trout, black bass and pike. Reached via the Pennsylvania Railroad. Hotels, $2. Country mountainous, with suitable grounds for camping.

Huntingdon. Bears and deer, neither abundant; plenty of turkeys, partridges, squirrels and other small game; good black bass fishing. Reached via the Pennsylvania Railroad. Hotel $2, private board $1.50.

Indiana County—

Blairsville. Wild turkeys, geese, ducks, quail, partridges, squirrels; pike, salmon, white and black bass. Reached via the Pennsylvania Railroad. Hotel $1.25 to $2; teams $3 to $4. Hilly country.

Saltsburgh. Quail, partridges, squirrels; pike and perch. Reached via the Pennsylvania Railroad. Hotel $1.50 to $2; teams $2.50 to $3.50. Hilly country.

Jefferson County—

Coolspring. The waters here have been stocked with trout, and will in time furnish good sport. Reached via the Shenandoah and Allegheny Railroad.

Juniata County—

Mifflintown. Bear hunting on Shade Mountain; deer, partridge, small game, and trout afford abundant sport in the vicinity. Mifflintown, on the Juniata River, is opposite Perrysville, a station on the Pennsylvania Railroad. Hotels $2; teams $3.

Lancaster County—

Columbia. Wild ducks, partridges; bass and salmon. Reached via the Penn-

sylvania Railroad. The Continental and other hotels, with boarding houses, $1.50. Boats, etc., at reasonable rates.

Lehigh County—

Allentown. The streams in the vicinity have been stocked with trout. Allentown is on the New Jersey Central, Lehigh Valley and Philadelphia and Reading Railroads.

Luzerne County—

Wilkesbarre is situated in a fine hunting and fishing region. The mountain streams are full of speckled trout; twelve miles northwest is Harvey's Lake, abounding in black bass. Reached via the New Jersey Central, the Lehigh Valley, or Delaware, Lackawanna and Western Railroads. The hotels are the Wyoming Valley, $3.50; $14 to $20 per week, Luzerne House, Exchange, and at the lake, the Lake House.

Whitehaven. Trout fishing good in the vicinity. Reached via the Lehigh Valley Railroad. The Whitehaven Hotel furnishes good accommodations.

Carbondale. Six miles northwest is a mountain loch, Crystal Lake, which contains black bass. There is a summer hotel on the shore of the lake, with a pleasure steamer and small boats. To reach Carbondale take the Delaware and Hudson, or the Erie Railroad.

Lycoming County—

Ralston. Bears, deer, squirrels, woodcock, ruffed grouse. There is excellent trout fishing in Roaring Branch, Pleasant Stream, and the Winslow, tributaries of the Lycoming Creek, and in the main stream itself from Ralston to Field's; the fish running in weight from one-fourth of a pound to two pounds. Reached via the Northern Central Railroad. Comfortable accommodations at the Ralston and Meyer's hotels, where teams and guides may be procured.

Lewis' Lake, a growing summer resort, is twenty miles from Muncy, reached by stage. The lake, which covers three hundred and fifty acres, contains brook and lake trout, eels, catfish and other species. All the streams in the neighborhood furnish excellent brook trout fishing, and the duck shooting is always good.

Bodinesville, on the Northern Central Railroad is an excellent centre for shooting and trout fishing in the Lycoming Creek and its tributaries. Tim Gray's Run, Rock Run, Pleasant Stream and other fishing waters are easily accessible. Accommodations are furnished at Bodinesville, in private family, $1.50; teams, etc. At *Rock Run* is a large hotel, the summer resort of Baltimore, Washington and Philadelphia pleasure seekers. The fish of these streams are brisk and gamy, but a special knowledge of their haunts, and a peculiar aptitude for alluring them, is essential to the angler who purposes a visit to Lycoming Creek, and even then he is not likely to get a large basket.

Muncy. Deer, bears, ruffed grouse, woodcock; and splendid trout fishing. Reached via the Pennsylvania, and the Philadelphia and Reading Railroads. The ponds of the Muncy Trout Company are situated in the Muncy Valley, in sight of Muncy and Hughesville, and fifteen miles from the city of Williamsport. There are fifteen acres of forest and a half mile of stream and ponds. As to lodgings, you can take it *al fresco* in a tent or at the hotel.

Trout Run. Good trout fishing and woodcock shooting. Reached via the Northern Central Railroad, fifteen miles from Williamsport. The country is rugged and densely wooded.

Pine Creek. There are good trouting streams in the locality. The route is via the Allegheny Valley Railroad.

McKean County—

Kane. Deer, bears, wildcats, rabbits; pheasants, woodcock, ruffed grouse; trout. Kane is among the Allegheny Mountains at the highest point of the Philadelphia and Reading Railroad. The Thomson House, $1.50 to $2. Guides easily secured at reasonable rates.

Ludlow. Good trout streams in the vicinity. Reached via the Pennsylvania Railroad.

Mercer County—

Trout Island, situated in the Chenango River, about six miles from Sharon, and ten miles from Greenville, is a favorite resort for ducks, woodcock, snipe, etc. It is owned by a club; but there is equally good shooting in the vicinity that is not preserved, as well as good trout fishing. Reached by the Atlantic and Great

Western, and the Erie and Pittsburg Railroad to Greenville. Pike and black bass fishing is good in the neighborhood of Greenville. A good hotel is kept here by Fred Grubbe.

Mifflin County—

Lewistown. From Lewistown, the Kishacoquillas Valley, whose streams abound in trout, and on the Blue Ridge to the south, is a great unbroken wilderness, haunted by deer, bears, and wild turkeys. Black bass fishing is good in the neighborhood. Reached via the Pennsylvania Railroad. National Hotel and Coleman's. Board $1.50 to $2. Boats 25 to 50 cents; teams $2 to $3.

Monroe County—

Tobyhanna Mills. Good trout fishing. Reached via the Delaware, Lackawanna and Western Railroad, a short distance beyond the Water Gap. Hotel accommodations at Case's, where teams, etc., can be obtained. The upper part of the Tobyhanna is full of trout, but difficult to wade; further down more even, and affords good fly fishing.

Henrysville. Good trout fishing. Reached via the Lackawanna and Western Railroad.

Delaware Water Gap. In the vicinity are Hornbeck's, Dingman's, and Adams' Creeks, all trout streams, while Mill, Tom's and Cole Creeks, all full of fish, are accessible. Woodcock and wild fowl shooting on the Delaware. Reached via the Delaware, Lackawanna and Western Railroad. From New York, via Morris and Essex Road; three and one-half hours; fare $2.55. Several hotels, $10 to $20 per week.

Stroudsburgh. Good trout fishing in the Broadhead Creeks, twenty-five miles from the Delaware Water Gap. Reached via the Delaware, Lackawanna and Western Railroad.

Montgomery County—

Norristown. Black bass fishing in the Schuylkill. The best localities are in the swift waters below Rawlings, Catfish, Norristown, Conshohocken and Flat Rock Dam. The principal bait used is the live minnow (shiner), although worms, clams and cheese are successfully used. Norristown is on the Philadelphia and Reading Railroad. There are two hotels.

Perkiomenville. Good black bass fishing in the Schuylkill, at Paulin's Bridge. Reached as above, the Reading Railroad.

On Wissahickon Creek are a few quail and ruffed grouse; in the vicinity of Penllyn.

Pottstown. Good black bass fishing. Reached via the Reading Railroad.

Eagleville. Deer, partridges, squirrels and other small game; trout and pike. Reached via the Pennsylvania Railroad. Hotel $1.50, $5 per week; guides $2; teams $4. Parties hunting will find convenient stations at the lumbermen's camps, which are numerous in the forests.

Northampton County—

Easton. Good bass fishing in the Delaware. Woodcock, ruffed grouse, quail, and deer shooting. Reached via the Central Railroad of New Jersey, the Delaware, Lackawanna and Western, or the Lehigh Valley Railroads.

Northumberland County—

Sunbury, on the Susquehanna River. Deer, and smaller game, bass, salmon and trout. Reached via the Northern Central, or the Philadelphia and Erie Division of the Pennsylvania Railroad. Hotels; Central House, City Hotel, and boarding houses, $1.50 to $2.50. Teams $3.50 to $6. Boats, etc.

Perry County—

Newport, on the Juniata, forty miles above Harrisburg, is a favorite resort for bass fishermen. Wild turkeys are found in the vicinity. Reached via the Central of New Jersey and the Lehigh Valley Railroads. Board $2; teams $3.

Duncannon. A good centre for quail, ruffed grouse, wild turkeys and rabbits. Wolves and deer are seen rarely. Reached via the Pennsylvania Railroad.

Philadelphia County—

Philadelphia. In the marshes both above and below the city is good rail and reed bird shooting in season. Grey squirrels are found in the woods in the vicinity of the city. Rockfish, catfish and perch are caught in the Delaware within ten miles. Gloucester Point and Tacony are good points. Shad and sturgeon roe, and clams for bait.

Bridesburg. Fine rail and reed bird shooting. Reached via the New York Division of the Pennsylvania Railroad.

Pike County—

Dingman's Ferry, on the Delaware River. Bears, deer, squirrels, ruffed grouse, quail, woodcock; trout, pickerel and black bass. Reached via the Erie Railroad to Port Jervis, thence stage, fare $1. Dr. P. F. Fulmer's High Falls Hotel; board $2.50; $10 per week; guides $2; boats free to guests; teams $ to $6. Adams Creek one and one-half miles distant. Bushkill, thirteen miles, Water Gap twenty-five miles. See Milford.

Lackawaxen. In the vicinity deer, hares, ducks, snipe, ruffed grouse; trout, bass, lake trout and pickerel. In the Lackawaxen region Lord's Brook, Panther Brook, Taylor Creek and other streams afford fine trouting. Reached via the Erie Railroad. Williamson's Hotel is a good central station for the sportsman. Board $8 per week. Wagons and carriages can be hired.

Masthope. Deer are found in Cranberry Marsh, Grasse's and Panther Swamps, and other haunts known to the guides.

Milford. Woodcock, ruffed grouse, partridges, quail and squirrel shooting is excellent in the vicinity. Within easy reach of Milford—many of them but a few minutes' walk—are numerous trout streams which furnish in season abundant sport to the angler. These streams all thread the most picturesque glens and glades, and some of them abound in scenery unequalled even among the Adirondacks. Notable among these streams is the Adams Brook, seven miles below Milford. The Sawkill and the Vandermarck, both running through Milford; the Raymondskill, three miles below the village; the Coneshaugh, four miles below; Ryder's Brook, three miles above, on the Port Jervis road; the Capow, two miles west of Milford, and dozens of smaller streams are all within easy reach, and all afford good fishing. Besides the trout streams, the Delaware River contains black bass, and many other varieties of the finny tribe; in every direction lie inland lakes for which Pike and adjoining counties are noted, all stocked with fine game fish, and all easy of access. Excursions to these lakes, which are from five to fifteen miles distant, are among the popular recreations of the summer visitors to Milford. Guides to all of these streams and lakes are readily obtained in the village. There are numerous good hotels, all furnishing good accommodations, $10 to $14 per week, with boarding and lodging houses. The Wells' hotel is resorted to by sportsmen and has every facility for shooting and fishing. Guides, dogs, etc., are always to be had. The route is via the Erie Railroad to Port Jervis, thence seven miles of staging.

Blooming Grove Park is an extensive game preserve owned by the Blooming Grove Park Association who have a club house on the premises. To hunt and fish here permission must be obtained from the proper authorities. The game includes bears, deer, grey squirrels, rabbits, etc., ducks, woodcock, quail, and other birds. The fishing is for black bass, perch, pickerel and catfish. The route is via the Erie Railroad to Lackawaxen, thence stage or private conveyance. Excursion tickets to Lackawaxen are issued from the Erie office, No. 421 Broadway, New York. For bear hunting go to Westbrook's Tavern, where old hunters are always to be found who will act as guides. The Westbrook Meadows, which are just on the confines of Blooming Grove Park, are widely known as a capital ground for July woodcock.

Shohola, one hundred and eight miles from New York, is beautifully located among the mountains, overlooking the Delaware. It is in the heart of the famous hunting and fishing regions of Pike and Sullivan Counties. There is but one hotel, the Shohola House, kept by George Layman. It is a new and commodious hotel, near the depot. Detailed information as to the locality, and terms, may be obtained by addressing the proprietor. Take the Erie Railroad.

Porter's Lake. The quickest and best way for sportsmen to go to this lake from Philadelphia is to take the cars from the Kensington Depot and go to Stroudsburg. An excursion ticket to that place will cost $4.85. They can get a wagon at Stroudsburg from W. K. Henry, who keeps a livery stable, and will take them to the lake for $6. It will take about six hours ride to get there, or, if they write to the proprietor of the hotel, Adam Rinehart, he will send his team to meet them. In the lake will be found pickerel, catfish, and perch. The black bass were only put in the lake in August, 1874. There are plenty of trout streams in the neighborhood, particularly the Bushkill Creek, the Sawkill Creek, Middle Branch and Indian Calvin Branch (branches of the Bushkill), which streams are all within a short distance of Porter's Lake. Good board may be obtained at the hotel for $7 per week which will entitle one to the use of the boats, whereas

should sportsmen camp out and have no boats, it is very doubtful if they can catch any large fish, for these are to be caught only at certain places in the lake, which must be fished from a boat.

High Knob, nine miles from Porter's Lake, reached via cars to Oakland, and thence a team, is an excellent camping ground with splendid black bass fishing near at hand. A boat is necessary. The lake may be reached from New York via the Erie Road to Hawley, thence wagon.

The *Saxokill Creek* is a favorite stream with anglers, among whom it has gained the *sobriquet* of the "Old Reliable." A good basket will reward the angler in its waters. Reached from Milford and other points.

Bushkill. The Bushkills, Saw Creek, Pond Run, Tom's Creek, and other streams are famous for their trout. Go to Bushkill, reached by carriage road from Stroudsburg on the Delaware, Lackawanna and Western Railroad.

Potter County—

Coudersport. Bears, deer, rabbits, squirrels, quail, ruffed grouse, partridges, woodcock and ducks. The streams and brooks swarm with fish, especially trout. The trip to this region can be made in less time, and with much less expense, than to any other hunting districts.

The nearest and shortest route from the West is via the Buffalo, New York and Philadelphia Railway. The fare from Buffalo to Port Alleghany is $2.98. Thence via stage. Reached from New York City via Philadelphia and Erie Railroad to Emporium. Provide camping equipments.

Wharton Mills. The East and First Forks of the Sinnemahoning here unite. About a mile below the junction is an old mill, and under the dam a deep pool where trout are always to be taken. Both the Forks afford excellent fly fishing with plenty of room to cast, while for bait fishing there are many waters within an hour's drive from Wharton, noticeably Nelson and Freeman's Runs, Birch Creek, and the headwaters of East Fork. The route to Wharton is via the Pennsylvania Railroad to Sinnemahoning Station, fare $3.35; time twelve hours. Stages run thence Mondays and Thursdays, fare $1.50. On other days a team may be hired for $5. Good and cheap accommodations at M. M. T. Siebert's, whose post office address is, Care F. Welton, Sinnemahoning. Guides $1. An india-rubber stocking, with stout brogans will be found very serviceable here, and a small landing net will often come into play.

Schuylkill County—

Pottsville. This county abounds in wild turkeys, partridges, pheasants, rabbits, squirrels, geese, ducks and deer. The mountain streams are full of trout, and in some of the waters are large sized catfish, chubs and eels. Reached via the Philadelphia and Reading Railroad.

Somerset County—

Confluence, Somerset and Ursina. For the game see Connellsville, Fayette County. There are good hotels at all these places, which are reached via the Pittsburg, Western and Baltimore Railroad.

Sullivan County—

Hill's Grove is in the vicinity of some good trouting streams. Write to R. Biddle, at that place.

Tioga County—

Mahoopany Tributaries. Take Philadelphia and Reading Railroad, or Delaware, Lackawanna and Western Railroad, to Bloomsburg, and then wagon to the streams, which are within four miles of Colonel Rickett's Long Pond Hotel. Address John Gibbs, Bloomsburg. Good deer, ruffed grouse, and squirrel hunting in their season. Board in private family at $7 per week.

Union County—

Mifflinburgh. Deer, ruffed grouse and quail. Reached via the Philadelphia and Erie Division of the Pennsylvania Railroad. Three hotels, $1.50 to $2.

Warren County—

Warren. Deer shooting, and trouting. Reached via the Philadelphia and Erie Division of the Pennsylvania Railroad. Hotel, $1.50 to $2.

Grand Valley. Deer, ruffed grouse, and other small game. Reached via the

Dunkirk, Allegheny Valley and Pittsburg Railroad. Hotel $1; teams $3. The surrounding country is hilly.

Kinzua. Deer shooting along the Kinzua Creek.

Washington County—

Good quail and fair ruffed grouse shooting throughout the county along the lines of the Baltimore and Ohio, and the Pittsburg, Cincinnati and St. Louis Railroads. Inquire of the train conductors as to best localities.

Wayne County—

Waymart is a good central point, with hotel accommodation. Bass, pickerel and trout in abundance. Reached by Erie Railroad to Honesdale, or Carbondale, thence stage or hired conveyance.

Honesdale. White's Hollow, twelve miles distant, abounds in ruffed grouse and some large game. Panthers are occasionally seen. The country is hilly and densely wooded. Reached via Erie Railroad.

Wyoming County—

Forkston. Excellent trout fishing in the Mahoopany River. Hotel accommodations will be found, with guides, teams, etc.

Eaton. Black and grey squirrels are abundant in the vicinity. Deer, bears, ruffed grouse, etc. Trout in the streams.

Mahoopany. There is a good hunting ground on Muncey Creek and the Loyalsock, Mahoopany, etc. Colonel Ricket keeps a sporting house at Long Pond, on the old Berwick turnpike leading to Susquehanna River, and through to Dushore, the present terminus of the Sullivan and Erie Railroad. Long Pond is the very heart of the wilderness, and can be easily reached from New York or Philadelphia by taking Lehigh Valley Railroad to Mahoopany Station, and thence by stage and rail.

RHODE ISLAND.

Rhode Island, the smallest State in the Union, has an area of 1,046 square miles, with a population of 352,791. The surface of the State is generally hilly and rough, though without any mountains. The Narragansett Bay, with numerous rivers and tributaries, extends into the State thirty miles, and is thickly studded with islands. The game of the State is confined, in the interior, to the smaller varieties of birds, and on the coast comprises all the wild fowl and bay birds common to the New England States. One hundred and twelve kinds of fish are found on the Rhode Island coast. The fishing and shooting grounds are easily accessible by excellent railroad and steamboat communications.

Bristol County—

Bristol. Boats, yachts and boatmen are always to be had for the fishing and shooting found here. Ducks, snipe, plover, and other varieties of bay and shore birds, afford good sport, while the fishing is varied and abundant. Reached via the Providence, Warren and Bristol Railroad.

Kent County—

Greenwich, on Conesit Bay. Ducks, plover, snipe, and other bay and shore bird shooting. Reached via Shore Line Railroad. Hotels, boats, etc.

Old Warwick, a few miles from Greenwich, across Conesit Bay, has excellent shooting and fishing facilities.

Summit. Woodcock shooting may be found in the vicinity. Reached via the Hartford, Providence and Fishkill Railroad.

Newport County—

This county is made up, for the most part, of a great number of islands, with a strip of the mainland forming its eastern section. The waters and coasts afford much fishing and wild fowl shooting. The sportsman may make his headquarters at any of the villages, and will be pretty sure to find good sport there. Where hotel accommodations are not found, board may, as a general thing, be obtained at private houses, and boats with boatmen are always to be secured at reasonable rates.

Newport. Snipe, yellow legs, dowitchers, plover, brant, teal, wood ducks, black ducks, greenheads, and other birds afford excellent sport. Bateman's Point is much visited by gunners. Every facility for fishing will be found at Newport, and the fish caught here are of great variety, embracing most of those common to the Rhode Island coast. Sachuest Point at the southeastern extremity of the island, is the favorite fishing ground. Newport has railroad connections, via Old Colony, with Boston, or via Shore Line, with New York; and steamboats run to New York, Fall River, Rocky Point and Providence. There are a great number of hotels, private boarding houses, cottages, etc.

Providence County—

The northeastern part of the county, comprising the towns of Burrillville, Gloucester, good for quail, ruffed grouse, wild pigeons, rabbits and squirrels. Make headquarters, either at Pascoag, reached by rail, twenty-one miles from Providence on the Providence and Springfield Railroad, or at Chepachet, three or four miles by stage from Oakland Station on the same road. Sneach Pond in Cumberland, Moswansicutt Pond in North Scituate, Herring Pond and Pascoag Reservoir, in Burrillville, are good for black bass. There is good trout fishing in Naterman's Pond, Burrillville. Trout are not plentiful nor large, owing to innumerable mills and much fishing. On the Branch River, a tributary of the Blackstone, are thirty-one dams.

Providence. Good woodcock shooting in the vicinity, with all the varieties of shore birds, ducks, plover, snipe, etc. There are many resorts in the immediate vicinity of the city, where boats and boatmen may be secured for gunning and fishing. The fish and game are abundant in many localities known to Providence sportsmen. Rocky Point, reached via steamer, midway between Providence and Newport, is one of the most popular resorts of New England, and furnishes excellent fishing. The numerous islands in the vicinity, accessible by steamer, or hired yacht, are much visited by sportsmen, and among them success with rod and gun is always to be found.

Washington County—

Narragansett Pier is a fashionable summer resort, reached via the Lake Shore Line to Kingston, thence stage or carriage, nine miles; or via boat from Providence and Newport. Below the Pier is a mass of rocks, from which many fish are caught. Boats, boatmen, etc., may be procured for fishing in the Bay. There are numerous fine hotels, $12 to $18 per week.

Five miles from the Pier, reached by carriage road, is Peacedale, where the sportsman will find good quail and snipe shooting.

The road running southeast from Peacedale, leads to the Porter Place, near which is Point Judith Pond, a long lagoon, having many islands and full of fish.

South Kingston. Worden's Pond affords good fishing, and in the great pine and cedar swamp here will be found a variety of shooting. Accommodations can probably be obtained at some of the farmhouses in the vicinity. Take the Shore Line to South Kingston.

Watch Hill. The shooting here is for ducks, geese, curlew, sand snipe, yellow legs, etc., the fishing includes the varieties common to the sound, bluefish, blackfish, striped bass, and others. The route is via the Shore Line to Westerly, thence steamer down the Pawcatuck River, or from Stonington, New London and Norwich, via steamer. There are several hotels, prices moderate. Every facility for sport will be found here.

Block Island, reached by steamer from Stonington and Newport, or yacht from Martha's Vineyard, and other points, is a noted place for fishing. The only variety affording much sport however, is the bluefish. There are two hotels, with boats, boatmen, etc., on hire.

SOUTH CAROLINA.

South Carolina has an area of 34,000 square miles and a population of 705,606. An outline of the physical features of the country would be found to closely resemble that already given of its sister State, North Carolina. We here find repeated, or, more properly, continued, the sea islands; the sea coast, broken by numerous inlets and lagoons; the low level pine and swamp lands; back of this, the hill country gradually rising towards the West; and finally the mountains in the extreme western part of the State. The game, traveling facilities, accommodations, etc., are generally the same as those of North Carolina.

Aiken County—

Aiken, a favorite watering place, much patronized by northern visitors and invalids in winter. Its hotels will compare favorably with the majority of those at the north. There is good shooting for snipe, quail and turkeys within easy riding distance. **Take the South Carolina Railroad.**

Hamburg. Around the old and now almost deserted village of Hamburg, on the Savannah River, directly opposite the city of Augusta, and in spite of its propinquity, may be had good quail shooting, and an occasional deer or turkey may be bagged up the river. At the rapids of the Savannah River, seven miles up, there is good perch and shad fishing, both of which are often taken with rod, reel, and flies. **Can get board in Augusta; possibly in Hamburg.**

Barnwell County—

The pine forests and swamps of the county are excellent shooting grounds for deer, wild turkeys, foxes, rabbits, squirrels, quail, woodcock, etc., with an occasional wildcat, and on the rivers are to be found geese, ducks, snipe, etc. Take the South Carolina Railroad to Williston or Blackville, and strike out from either of these points.

Millettville. **Good quail shooting near the town. Foxes and wildcats are** shot within a short distance. The prevailing mode of hunting in this section of the country is from horseback. For fox hunting there are several packs of hounds **in the neighborhood.**

Beaufort County—

Like all of those lying upon the coast, this county in the eastern section is low and interspersed with much swampy land. The coast region is made up of a system of islands with inlets, bays, straits, and channels, nearly all navigable. Like all the rice producing lands of the State this region abounds in the common varieties of ducks; mallards, black ducks, widgeons, pin-tails, gadwalls, teal, shovelers, ring-necks, greater and lesser scaups, buffleheads, ruddies and mergausers. In addition to these the sportsman will find all through the rice fields, along the coast and on the islands, great numbers of white-fronted geese, jack-curlew, black breasted plover, godwits, willets, sanderlings, marsh hens, snipe, rail, woodcock, quail, partridges, wild turkeys, rabbits, coons, squirrels, and other game. Deer are abundant on the Hunting Islands, near Beaufort, and Port Royal, either one of which is an excellent place for sportsmen to make their headquarters. Take steamer from New York, or Fernandina, Fla., or go via the Port Royal Railroad, which connects at Yemassee with the Savannah and Charleston Railroad. **January and February are the best months for sport.**

Charleston County—

Charleston. The surface of much of the county near the coast is very low and at times subject to inundation. The game found here is similar to that of the coast region of the state generally. Ducks of all the common varieties are abundant, mallards, teal, widgeons, pin-tails, shovelers, scoups, buffleheads, ruddies, gadwalls and mergausers. Geese, snipe, plover, sanderlings, godwits, willets, marsh hens, reed birds, etc., also abound on the coast. The fishing about the

city is for the common southern coast fishes ; the breakwater at Sullivan Island, and the rocks about Fort Sumter are excellent grounds for sheepshead. By taking rail back into the country, a few hours ride will bring the sportsman to a country where deer, foxes, wild turkeys, squirrels, etc., are found in numbers sufficient to insure success. Charleston has rail and steamboat communication with the northern and southern ports and all points in the interior.

Colleton County—

The description of this county agrees in all essential particulars with that of Beaufort County. The surface is partly swampy and extensive tracts are covered with pine forests. The coast region is made up of numerous islands all abounding in game, and the rivers and sounds between them furnishing good fishing. Ducks, geese, snipe, plover, reed birds, woodcock, quail, etc., are found all through the eastern portion of the county. In the woods and swamps are deer, foxes, squirrels, coons, wild turkeys. The South Carolina, and the Charleston and Savannah Railroads traverse the county and render accessible some of the best regions for the sportsman. The coast shooting grounds may be reached by yacht from Charleston or Beaufort. The hunter cannot fail of finding abundant employment for shot gun and rifle among the sea islands of the Carolina coast. The winter months are the best for sport.

Georgetown County—

The extensive rice fields on the lowlands near the coast attract great flocks of wild fowl and other birds. Ducks in great variety, reed birds, and all the varieties of bog and shore birds enumerated under Beaufort County are found here in equal abundance. The swamps and hummock lands are generally well supplied with deer, wild turkeys and other like game, and there one may occasionally meet with a wildcat. Foxes and coons are abundant through the county. The natives are as a rule well supplied with fox hounds and the stranger will find little difficulty in securing the services of competent guides. Take steamer to Georgetown and make that town headquarters, or go from there by boat or hired conveyance into the interior.

Horry County—

A large portion of this county is swamp and marsh, and here are to be found in immense quantities many varieties of wild fowl and larger game. The northwestern part of the county is traversed by the Wilmington, Columbia and Augusta Railroad, and the eastern sections are rendered accessible by the Wallamon River. Bucksville or Conwayboro reached by boat from Georgetown will be found good headquarters for sport.

Richland County—

Columbia. The pine forests and swamps are the abodes of great numbers of deer, rabbits, swamp rabbits, squirrels, coons, etc. There is excellent partridge, woodcock and dove shooting. Mallard and teal duck, and geese are shot on the Saluda River. Columbia is well supplied with railroad communications with all the surrounding country. The Charlotte, Columbia and Augusta, the Greenville and Columbia, the South Carolina, and the Wilmington, Columbia and Augusta Railroads all pass through fine game countries, and on the line of any one of them will be found convenient centres for the gunner.

TENNESSEE.

Area 45,600 square miles, population, 1,258,520. That portion of the State lying east of the Cumberland Mountains, and commonly known as East Tennessee, is traversed by numerous mountain ridges ; Middle Tennessee is generally hilly, and West Tennessee, or the section west of the Tennessee River, is level or gently undulating. With the exception of deer, there is little large game to be found in the State. Foxes are numerous and the

music of the hounds is often heard. Wild fowl are abundant in season in many of the lagoons and rivers; the fishing is for the most part indifferent. The gentleman stranger will find the people of the hunting districts always hospitable, and rarely will it occur that some one cannot be found who has the time and the inclination to serve as guide and join in the sport.

Bedford County—

Shelbyville. Quail, black, and other varieties of ducks, furnish good shooting in the vicinity. Reached via the Nashville, Chattanooga and St. Louis Railroad. The county is undulating and hilly.

Cooke County—

Casby Creek, a tributary of Big Pigeon River, is a good trout stream.

Davidson County—

Nashville. On the bottoms of the Cumberland River, wood ducks are quite abundant all the way from Nashville to the forks, three hundred and forty miles above, especially in the month of October, when the white acorns commence falling. Quail, partridges, rabbits, wild turkeys and deer are also found in abundance along the Cumberland.

Dyer County—

Reelfoot Lake. Swan, geese, mallard, teal, and other varieties of water fowl in great abundance. Bear and deer in the vicinity. Reached by hired conveyance from Dyerburg or Johnsonville. Hotels, boats, etc. A dense cypress swamp surrounds the lake.

Trimble. Deer, wild turkeys, ducks, etc. Reached via the Paducah and Memphis Railroad. Private board 75 cents per day.

Franklin County—

Sewanee. Black bass and black perch are caught in the Elk River. The mountains of the country afford good deer hunting, and smaller game is found in fair abundance.

Hamilton County—

Wauhatchie. Deer in the mountains, with quail in the neighboring fields. Wauhatchie is a station on the Nashville, Chattanooga and St. Louis Railroad, six miles from Chattanooga.

Chattanooga. Bass fishing in the neighboring creeks, Chickamauga, twelve miles, and others. Deer, foxes, coons and rabbits, are found on the neighboring mountains. By taking any one of the numerous railroads radiating from the city, the sportsman may reach excellent shooting grounds, within a few hours' ride.

Hardin County—

Hamburg. Turkeys, ducks, geese, quail; bass, catfish, drum and buffalo fish. Reached via Tennessee River boat, or via rail to Chickasaw, Ala., thence stage or horseback.

Pittsburg Landing. See Hamburg.

Savannah. Ducks, geese, wild turkeys, quail, and occasionally woodcock shooting. The fishing is for perch, trout, bream and gar pike. Route as above.

Johnson County—

Taylorsville, which is reached by wagon from Abingdon, Virginia, via Atlantic and Mississippi Railroad, is a fine centre for sportsmen wishing to fish the Laurel and its tributaries in the adjacent mountains, where brook trout and small game are found.

Lake County—

Tiptonville. Good duck shooting on Reelfoot Lake. Reached via Thompson's Ferry. Provide for camping.

Lauderdale County—

Hale's Point. Deer, wild turkeys, quail, woodcock and other game. Reached via St. Louis packet daily, Cincinnati packets, three or four times per week. Hotel $5.50 per week.

Lawrence County—

Shoal Creek is a good game centre, and is a favorite resort for Nashville sportsmen. The black bass fishing is good, and on the Muscle Shoals, near the mouth of the creek, in Alabama (which see), will be found splendid duck shooting. Reached by rail from Nashville to Bodenham, thence drive.

Madison County—

Jackson. Trout, buffalo fish and catfish. Reached via the New Orleans, St. Louis, and Chicago Railroad. Hotel and private board, $1 to $2.

Madison is a good centre for quail shooting. Reached via the Louisville and Nashville and Great Southern Railroad, or the St. Louis and Southeastern Railroad.

Shelby County—

Memphis. In the vicinity of the city, on either side of the Mississippi, bears and deer afford fine sport. A resort for hunters is Bayou Pemiscot, which lies on the river, partly in Missouri and partly in Arkansas. The cane below the city is a fine ground for bears, panthers, wildcats, wolves, deer, and occasionally, elk. Foxes, quail, partridges, etc., are abundant all through the surrounding country.

TEXAS.

Texas embraces an area of 237,504 square miles. The State comprises a great variety of surface; the extreme south-eastern portion is a level plain, which is followed by rolling and prairie country, and this in turn, is succeeded by the table land and mountainous districts of the north and north-west. The Llano Estacado, destitute of vegetation, extends into the State from New Mexico. The sea coast is broken by a series of bays, lagoons and harbors, all of them abounding in an extensive variety of salt water fish. As a game country Texas surpasses any State in the Union. Taking steamer on the coast, or any one of the railroads into the interior, the sportsman will find, within easy access from almost any locality he may select as his initial point, game in the greatest variety and abundance. Upon the bays, lagoons, and inland streams, are ducks, geese, brant, snipes, plover and other varieties of game birds. Buffalo roam over the north-western counties. Bears, deer, antelope, etc., are to be had in the greatest abundance. Turkeys, pinnated grouse, quail, etc., are found throughout the State, and go where he may the sportsman will always meet with success.

Bexar County—

San Antonia. The head waters of the Medina are fine hunting grounds for red deer, bears, wild turkeys, and partridges. (See Belknap.) Reached via the Houston and Texas Central Railroad to Austin, thence via daily stages to San Antonio, or go via the Galveston, Harrisburg and San Antonio Railway to Kingsbury, thence via daily stages.

Blanco County—

Round Mountain. Buffalo range in large herds seventy miles west. Deer are very plenty; with wild turkeys numerous in the cedar brakes; the peccary, or wild hog, is found on Sand Mountain, twelve miles west; jack-rabbits, cottontails, squirrels, foxes, coons and opossums are very abundant. Wild geese,

ducks, brant, pelicans, cranes, quail, and other birds afford fine sport on the streams in winter. Black bass, perch and white catfish may be caught in all the streams of any size. The Spanish ponies are used for the hunt. The sportsman may shoot from their back, or leave them to graze while he secures his game.

Chambers County—

The mouth of Trinity River is a favorite ducking locality. Reached from Galveston, Wallisville, or New Washington, on Galveston Bay. See Galveston.

Colorado County—

Game is plentiful at all seasons of the year, and consists of the deer, turkey, wild goose, wild duck, mule-eared rabbit, pinnated grouse, quails, plover, snipe, coons, opossums, the grey and cat squirrel, the wild spotted cat, and now and then a stray prairie wolf is found. The wild goose and duck are found in great numbers in the fall and winter. Fish abound in the rivers, creeks and lakes in great quantity and variety, and consist principally of cat, buffalo gaspergou, trout, black bass and perch. The Galveston, Harrisburg and San Antonio Railroad passes through the centre of the county. Good game grounds are to be reached from Columbus, Eagle Lake, Alleyton, Borden, or Weimar. The face of the country presents a beautiful undulating level.

Concho County—

Camp Concho, on the Concho River, is the southern limit of the buffalo country. Plenty of small game is to be found. Reached from San Antonio. (See Bexar County.)

Cooke County—

Gainesville, six hours from Sherman by daily stage, is on the waters of Elm Fork of Trinity River, twenty-five miles east of its head. This stream is deep and clear, and abounds with several varieties of fish. Three kinds of catfish are found in this stream, the yellow cat, the blue cat, and the channel cat; and three kinds of perch, the trout, the white bass and the sun perch. Several varieties of suckers are common, the largest being the "buffalo," which weighs from ten to fifteen pounds.

Seven miles north of Gainesville is Red River, the boundary line between Texas and Indian Territory. The hills running back from the river on each side are timbered, and afford hiding place for deer, turkeys, wild cats, wolves and foxes, with an occasional cougar or panther.

North of the river, for miles, lies a fine hunting ground in the open post oak woods, as the settlements are very sparse and the Indians friendly.

Tyas Bend, on the Red River, is a fine deer and turkey locality.

About twenty miles west of Gainesville is the eastern edge of the upper cross timbers, which extend through Montague County, a distance of thirty miles. Throughout the entire woodland the red deer and wild turkey can be found.

At Gainesville, Elm Fork turns due south till it leaves the county. It affords splendid stands for "driving." Along this stream, and on Red River, are several packs of trained hounds for hunting wildcats and deer. On the prairies are found the mule-eared rabbit, the pinnated grouse and plover, and in the vicinity of the farms the grey squirrel, fox-squirrel and quail. In the winter season the streams abound with wild geese and wild ducks. The fall and winter are the best seasons for sporting, as the winters are generally so mild that persons camp out all winter in tents. Take the Houston and Texas Central Railway, or the Texas and Pacific Railway to Sherman.

Galveston County—

Galveston. Plover, brant, mallard, blue and green-winged teal, grey ducks, big and little blue-bills, red heads, canvas-backs, golden eyes, top-knots, curlew, snipe, killdeer; trout, redfish, stingarees, alligators, gars, swordfish, sharks, jew fish, croakers and sheepshead. Reached via boat or by the Galveston, Houston and Henderson Railway. The favorite localities for duck are Smith's Point, distant fifteen miles, on the bay, and the mouth of Trinity River and the lakes twenty miles inland. On Bolivar is also a good ground for geese, teal and black duck, distant about seven miles, with innumerable ponds and sufficient protection to hide and creep on game unawares. In the Western Bay, not much frequented, feather above and fin beneath, sport their idle and dreamy hours away in perfect security, a pleasant place for the sportsman in the dead of winter. Always warm, free from storm, yacht protected from the most violent gales, and game so plenty,

no effort to kill. As the place is not known to any extent, and rather hard for sail boats to visit on account of intricate and shallow channels, and an out-of-the-way place generally, game of all descriptions seek it as their refuge in safety. The snipe grounds are the wild prairies, with a little water on them, where there is good walking and riding. Cars, boats and guides can be obtained at reasonable prices.

Goliad County—

Goliad. Ducks are found in great numbers in the vicinity.

Harris County—

Houston. On the line of the new Houston and Texas Western Railway and within thirty miles of Houston are found in great abundance deer, hares, prairie chickens, sandhill cranes, ducks, geese, blackbirds and quail. By going a very short distance back from the railroad the sportsman will find all the game mentioned in great abundance.

Heckley, forty miles from Houston on the Central Railroad, and one hundred and thirty miles from Austin. Grouse, snipe, ducks, geese, etc., here afford excellent sport.

Hopkins County—

Deer, turkeys, quail, and other varieties of game abound.

Hunt County—

White Rock. Deer, turkeys and small game throughout the county. Reached via the Missouri, Kansas and Texas Railroad. The country is open oak timber lands.

Kaufman County—

Terrell. Deer, jack-rabbits, pinnated grouse, quail, ducks and snipe. Reached via the Texas and Pacific Railroad. Board at hotel $2; teams $3. Country rolling prairie and timber.

Kinney County—

Fort Clark. Quail, plover, teal, wild turkeys, bears, deer; bass, catfish, gar, sunfish, and buffalo fish. Fort Clark is about one hundred miles west from San Antonio.

Marion County—

Jefferson. Deer, quail, snipe, mallards, teal, bass and many other varieties of game and fish. Reached via the Texas and Pacific Railroad. Hotel $2.50, private board $1.50; boats and guides $2.50; teams at reasonable rates. The country is rolling and timbered. The best fishing points are the three forks of Cypress Bayou, and Cudd Lake.

Mason County—

Fort Mason. At the Llano River, six miles distant, is excellent turkey shooting. The river contains several varieties of fish including the large yellow catfish, which is here esteemed a fine table delicacy.

Montague County—

The upper cross timbers thirty miles west of Gainesville (which see) are excellent hunting grounds for red deer and wild turkeys.

Shackleford County—

Fort Griffin. The vicinity of the Clear Fork of the Brazos River is a grand buffalo range. The locality is about one hundred and fifty miles south-west of Gainesville. Go via the Texas Pacific Railroad to Gainesville, fit out there, or at Henderson, with tents, wagons, teams, horses, etc., for a several weeks campaign.

The Northwestern Counties—

In the vicinity of the headwaters of the Brazos and Big Wachita Rivers, buffalo, antelope and deer are found in large quantities. The buffalo range extends from the tributaries of the Canadian, across the northern end of the Staked Plains to the Pecos River. This range however, changes very rapidly, and it is therefore difficult to give precise information where this game may be found.

The Southern Border Counties—

These counties abound in fine game, including turkeys, peccaries, deer, ducks, coyotes, sandhill cranes, partridges, jack rabbits, with a smaller variety, eagles, long billed curlew, herons, snipe.

Brownsville, Cameron County, is a good centre to start from. The route is via steamer to Brazos Santiago.

Travis County—

Austin. See Belknap, Young County. Austin is the terminus of the Western Division of the Houston and Texas Central Railway.

Upshur County—

Longview. Deer, wild turkeys and ducks. Reached via the Texas and Pacific Railroad. Board $6 per week, $20 per month.

Van Zandt County—

Will's Point. Deer, and pinnated and ruffed grouse. Reached via Texas and Pacific Railroad. Teams $4 to $5. Provide camping outfit.

Grand Saline. Deer in abundance. Reached via the Texas and Pacific Railway. Teams $3. Prepare for camping.

Young County—

Belknap. All this northern part of Texas, embracing both the Cross Timbers as a centre, and flanked by extensive prairies on the east and west, and abounding in game (in their places and season), hold out their peculiar charms, and invite the sportsman to the tented field. When acorns and other mast are plenty, and have fallen, then in the open woods, the sportsman will find deer, ducks, geese, and turkeys abundant, quail and rabbits plenty, antelope, grouse, and squirrels medium, and bear occasionally, to say nothing of prairie wolves, foxes, coons, possums, etc., not generally noticed. October, November and December are the perfect months for sport, and January and February not bad, but having a few days, at intervals, of rather cold weather—that is, a few inches of snow and ice, with cold, northerly winds—thus constituting what is so well known in Texas, as a "norther."

These remarks apply to northern Texas in winter, while along the gulf, or southern coast, these same winter months have the mild climate of New York in September. Connecting with the railroad running south from Dennison, near the north line of the State, are stages which convey persons at once to almost any part of the State desired. For central cities, in which to spend the winter for health, as well as for sporting, San Antonio stands first, and Austin, the capital of the State, second. These places cannot well be excelled, everything considered.

UTAH.

Utah has an area of 108,000 miles. The Wasatch Chain traversing the central part, and numerous other ranges give a decidedly mountainous character to the Territory. Deep cañons, dashing mountain streams, and plains are the principal features of the country. Though the game found here is not abundant, the list includes some of the larger game sought after by the hunter. Elk, deer, antelope, mountain sheep, bears and the common fur bearing animals with water fowl and the birds afford fair sport. The mountain streams and the lakes abound in salmon and trout of superior size, and here the angler will find opportunity for his highest skill. All parts of the Territory may be reached from

Ogden or Salt Lake City, at either of which points will be found pack horses, guides, and all necessary outfit and provisions.

Morgan County—

Peterson. This county is adjacent to Salt Lake County, and has the same general physical features. The game is abundant, and includes bears, deer, foxes, beavers, pinnated grouse, sage hens, pine hens and ducks. All the mountain streams furnish good trout fishing. The route is via the Union Pacific Railroad. Board in private family $1; guides $3. (See Salt Lake County.)

Salt Lake County, and those Adjoining—

The country generally is mountainous; the Wasatch, Oquirrh, and other ranges being prominent features, and occupying a large proportion of the whole district. Amid the Wasatch Mountains are the cañons of City Creek, Dry, Red Butte, Emigration, Parley's, Mill Creek, Big Cottonwood, Little Cottonwood, Willow Creek, and a number of other cañons and streams of less notoriety.

City Creek is immediately north of Salt Lake City, and the others are to the east and south in the order mentioned.

The cañons named are on the east side, and the mountains are more precipitous than those on the west, in the Oquirrh range, in which there are several cañons and streams, all of which contain game of various kinds. Iowa and California quail have been imported, and are doing well.

In both ranges of mountains there are plenty of pine hens, as they are locally known, and on all the foothills or benches at the proper season, can be found pinnated grouse, sage hens, rabbits, plover, curlew, etc., and on the bottoms nearer the Salt Lake are immense quantities of hares and cotton tail rabbits.

The Jordan River, which runs from south to north through the valley, has recently been stocked with imported fish of many varieties, and will soon afford excellent sport for the angler, as the streams contain large quantities of whitefish, chub, and some trout—which are indigenous to the stream. All of the streams from the cañons mentioned, are well stocked with mountain trout and mountain herring.

In nearly all of the cañons, especially those which are less frequented, deer, and an occasional elk, and large numbers of bears may be found. The severe snow storms of winter often drive the deer down into the settlements near the mountains.

The description here given, although with special reference to the immediate neighborhood of Salt Lake City, will apply to all other parts of Utah. To the north for one hundred and fifty miles, these cañons and streams are met with every few miles, and in them can be found more or less game of the kinds enumerated. The Weber River, near which Ogden is situated, is a splendid stream, rich in trout, and is a watering place for innumerable ducks and geese. Special mention is due to Ogden Cañon, one of the most picturesque and attractive mountain retreats in the Rocky Mountains. There are plenty of trout in the stream, and abundance of fowl on the mountain side. The hunter will find bears and deer also in their season.

Farther to the north is the Bear River, a magnificent stream liberally stocked with fish of many kinds, prominent among which is the trout. This is the finest river for fish in the Territory. But the best sport for the angler is found in the creeks, such as Blacksmith's Fork and scores of other narrow and swift mountain streams, which are the homes of great numbers of splendid trout. All of these streams can be reached without any difficulty, as they are in close proximity to the railroads, and in many instances crossed by them.

To the south of Salt Lake City about forty miles is the famous Utah Lake, full of trout, mullet, chub, mountain herring, etc. This is an immense sheet of water and although there are scores of tons of trout and other fish taken out each season, it still affords a supply for all demands made upon it. While speaking of the north mention should have been made of the splendid fishing and grouse shooting to be found in Cache Valley. Thousands of grouse, geese, ducks, etc., are shot here every season. These grounds can be reached directly by rail, as the Utah and Northern Railroad runs through the best hunting grounds.

In Bear Lake Valley, which is but a few miles from the northern terminus of the same road, there are large quantities of ducks, geese and chicken, and plenty of bears and deer to be found in the surrounding mountains. Bear Lake, about twenty-five miles long and eight to ten miles wide, is the abode of trout innumerable, consisting principally of salmon trout, some of them of very large

size. It is a common thing to see them here from four to eight pounds in weight and often ten, twelve and even fifteen pounds; and the flesh is as solid as beef and flavor almost equal to the smallest mountain trout.

To the west is Stockton Lake, on the line of the Utah Western Railroad, filled with whitefish, and its bosom frequently covered with ducks, geese, pelicans, etc.

The Hot Spring Lake, three miles northwest of Salt Lake City, is a favorite resort for ducks which are here at times exceedingly numerous.

The Great Salt Lake also is a great attraction to the feathered tribe. On its margin may be found pelicans, swans, geese and ducks by the million. The lake extends from immediately west of the city to about seventy-five miles north and all along its borders will be found in their seasons, curlew, jack-snipe, canvas-backs, mallards, teal, red-heads, and a great variety of other ducks, several kinds of geese, and all along the bottoms small game are to be found anywhere.

In the immediate neighborhood of Salt Lake City the game is mostly ducks and rabbits, thousands of which are sometimes killed in a day.

The best initial points for sportsmen are Salt Lake City or Ogden. Here all necessary information may be obtained, with supplies for camping out. The hotels through the Territory are generally fair, $2 to $4 and the stranger will find accommodations in private families $1 to $2 at most of the points mentioned. In some localities camping is preferable, but nowhere absolutely necessary. Teams $3 to $8; boats $1 to $2.

Summit County—

Echo City. Elk, deer, bears, sage hens, sharp-tailed grouse; trout. Reached via the Union Pacific Railroad. Hotels $1.50 to $2; guides $1.50; teams $4. Provide camping equipment. The hunting grounds are among the mountains. The description of Salt Lake County (which see) will apply equally to this county.

Wasatch is a starting point for elk, bear, jack rabbit, duck, goose and sage hen shooting, and trout fishing. Route as above. Private board $2; guides $1.50; teams $4 to $5. Sportsmen generally secure their camping outfit here and make their camp among the mountains.

Weber County—

Ogden City. Bears, deer, jack-rabbits, hares, pinnated grouse, sage hens, grouse, etc. The streams in the county are full of trout and other fish. Reached via the Union Pacific Railroad. Hotel and private board $2 to $3; teams with driver $4 to $5 per day. See Salt Lake County.

Uintah. Bears, deer, ducks, quail, pinnated grouse, trout. On the Union Pacific Railroad. Private board $1; teams $3 to $4. Country hilly and mountainous.

VERMONT.

This State embraces an area of 10,212 square miles and has a population of 330,551. The Green Mountains running north and south through the centre of the State, divide it into two nearly equal parts. The general surface of the country partakes of this hilly and mountainous character. Though without any large rivers within her boundaries, Vermont is well supplied with streams and several beautiful lakes. The mountains still contain some bears and other animals. There is fair shooting for some of the smaller species, and the fishing in certain parts of the State is fair. As a rule, however, this State has not many attractions for sportsmen from abroad. The travelling facilities and accommodations throughout the State will be found of the same general character as all the earlier settled States.

Addison County—

Vergennes. Whitefish, black bass, pike, etc., in Lake Champlain, and trout in Otter Creek. Reached via the Central Vermont Railroad. Two hotels.

Larabee's Point. Grey squirrels and coons.

Salisbury. Lake Dunmore abounds in fish. Reached via the Central Vermont Railroad. The Lake Dunmore House is on the west side of the lake.

Ferrisburgh. Ducks, ruffed grouse, woodcock, snipe and quail; pike, pickerel, black bass, rock bass and perch. Route as above, or via Lake Champlain steamer.

Bennington County—

Arlington, on the Western Vermont or Harlem Extension Railroad, has good trout fishing. Two hotels afford comfortable accommodations.

Manchester, at the base of Mount Equinox in the valley of the Battenkill, is much visited in summer for its fine trouting. (See Weston, below.) Ruffed grouse shooting in the neighborhood.

Glastenbury. Bears are found in the mountains; trout in all the streams. Ruffed grouse are shot in fair numbers. Reached from Bennington, distant five miles.

Dorset. Good grey squirrel shooting here and in the vicinity. Reached via the Harlem Extension to Factoryville, thence by stage. Hotel.

Bennington. Trout are caught in the Walloomack River, near this place. The pickerel ponds of Woodford are much visited.

Essex County—

The northeastern corner of Vermont is comparatively a wilderness, several townships being entirely without population, and a number of the organized, cleared and populated chiefly in the valley of the Connecticut River. In fact a greater portion of Essex county is forest. It is well watered by lakes and ponds, some of which are miles in length; all contain fish, the largest ponds, the lake trout, (called here lunge,) the brook trout and shad waiters, a sort of whitefish; the smaller ponds, trout or pickerel. In one of the lakes, the "Averil," where the largest speckled trout are caught, are also found land-locked salmon.

The lake trout are of a large size, sometimes taken upward of thirty pounds, but generally from one to seven pounds. In the woods are found a few moose, an abundance of deer, rabbits, partridge and duck, occasionally a bear and lynx; otter, muskrat, mink, sable and black cats are quite plenty. Grey squirrels are but rarely found. By taking the Grand Trunk Railroad and leaving the line at Island Pond or any other of the stations in the county, the sportsman will find the game mentioned within accessible distances.

Island Pond, reached as above, is in the midst of the uninhabited forest. Near the village is a lake two miles in length whose waters abound in fish. There are good hotels and other conveniences here.

Norton, twelve miles from Island Pond, on the same road, is near Norton ponds which afford excellent fishing.

Rutland County—

Rutland. In Lake Bomoseen is excellent fishing. The migratory ducks pause here and in season excellent shooting may be had. There are several mountains and streams in the vicinity of Rutland where may be found game and fish. The route is via the Central Vermont and other Railroads. Hotels $2.50 to $3.

Wallingford. Ruffed grouse are abundant. In the streams fine trout fishing. Reached via the Western Vermont or Harlem Extension Railroad.

Brandon. Lake Dunmore is eight miles distant, reached by stage. (See Salisbury.)

Washington County—

Montpelier. Fine trouting in Peacham's Lake, distant twenty miles. Daily stages connect with Hardwick, on the Portland and Ogdensburg Railroad, passing through Calais, (Moscow House,) and Woodbury. All about these towns are scores of small lakes, abounding in trout and other fish.

Windham County—

Brattleboro. Black bass fishing in the Connecticut. On the New London Northern Railroad. The Brooks House here, is one of the finest hotels in the State.

Bellows Falls. Black bass fishing in the Connecticut River. Excursions are made by summer visitors to Warren's Pond, in Alstead, N. H. Good hotels. Reached via the Vermont Central Railroad.

Grafton. Foxes are numerous on the hills; ruffed grouse, partridges, rabbits and raccoons are abundant. Take the Central Vermont Railroad to Bellows Falls or Rockingham. Good hotel, F. and H. Phelps, proprietors. Country rough.

Windsor County—

Weston, is in the heart of the Green Mountains, and the neighborhood abounds in trout streams that are easily accessible from the village, and visited but by few besides the resident anglers. In the main streams the trout are of fair size. Then there is the Cold Spring Reservoir, literally swarming with fine, large trout, but except in the first of the open season, they will not answer a summons every day, nor are they a game fish. Weston is twelve miles from Chester, a station on the Rutland and Burlington Railroad, and connected by daily stage and can be reached the same day from Boston or Troy, N. Y. There is a good hotel. There are also plenty of accomplished and gentlemanly anglers to act as guides, notably Messrs. William Holden and H. B. Rogers, who are *au fait* in all that pertains to rod and gun, and own craft upon the reservoir.

The Battenkill, on the west side of the mountain, and running through Manchester, Sunderland and Arlington, is a famous trout stream, coursing through the open meadow most of the way, affording the finest sport for casting, as the deponent can testify from personal knowledge. Then the fish are large and gamy. The stream is greatly fished, but still the supply is kept up. In the towns mentioned, are capital hostelries, notably the Elm House, at Manchester, kept by C. F. Orvis, the maker of excellent cheap rods, and himself the most accomplished fly fisherman in the State, ever courteous and ready to put his guests in the way of securing a full measure of sport with rod or gun.

VIRGINIA.

This State presents a wide and attractive theatre for the gun and the rod; with water, plain, and mountain, every variety of sport may be had in its season. There are twenty-five hundred square miles of tide water within its limits, extending from the Potomac to Albemarle Sound, a distance of one hundred and thirty miles, embracing most of the Chesapeake Bay, and stretching up into the interior, by several large tidal streams, one hundred and sixty miles. In these waters are found numerous species of fish and every variety of water fowl. On the rivers, too, near the head of tide, sora and jack snipe abound in their season in all the marshes. Of these rivers, beginning on the north, we have first the Potomac, then the Rappahannock—the two making the narrow peninsula of sixty miles in length, and seven to twelve in width, called the Northern Neck—abounding in game and fish; then the Piankitank, and various streams in Gloucester and Matthews—all arms of the sea, as it were, emptying into Mob Jack Bay, a sort of inland sea—then York River, with its tributaries, Mattaponi and Pamaunkee—which make a peninsula of thirty miles in length, and from two and one-half to seven in width, bringing both streams within the range of the gunner and the angler, abounding with fish and fowl,

and the dividing ridge with deer, quail, turkey, foxes, raccoons, and opossums. The sportsman, with an humble heart, might find a contented home here. Next comes the James, called in earlier and better days, the Powhatan—which, with the York, makes what is called, simply by the way of preëminence, *the* Peninsula. It was the theatre of the earliest civilization of the Old Dominion, and the seat of its first metropolis. It extends from the bay upward some seventy or eighty miles—its upper portion bounded by the Pamaunkee and Chickahominy. This peninsula also abounds with game. The deer have returned, verifying Horace—*Ferisque ursus occupabitur solum.*

South of the James and near its mouth are two tributaries—Elizabeth River, and Nansemond—having their sources in the Dismal Swamp. This whole region is well adapted for sporting adventure.

Next we have the Chowan and its tributaries—the Blackwater, Nottoway, and Meherin—and then the Roanoke, with its tributaries—the Staunton and the Dan, which rise in the Alleghany Mountains.

Every portion of Virginia is easily reached by steamboat or rail from Norfolk, or Baltimore, or Washington.

The Atlantic, Mississippi, and Ohio Railroad runs from Norfolk, four hundred and eight miles to Bristol, Tennessee—passing Suffolk, in Nansemond, near the Dismal Swamp, through Isle of Wight, Sussex and Surrey Counties (where deer and other game are almost as abundant as when the Indians ruled the land), by Petersburg, Burkesville, and Lynchburg, at each of which places it is crossed by railroads going North and South. The Sea-Board and Roanoke Railroad also runs from Norfolk through Nansemond and Southampton Counties, to Weldon, N. C., crossing the Blackwater, Nottoway, and Meherin—the tributaries of the Chowan. This railroad is an extension of the daily line of steamboats from Baltimore to Norfolk. A line of fine steamers also ply between Norfolk and Richmond, stopping at the various landings on the river. York River and its tributaries—the Mattaponi and the Pamaunkee—are accessible from Richmond and Baltimore by the York River Railroad, and steamers from West Point to Baltimore. All the landings on the Rappahannock are reached by steamers, which run twice a week between Baltimore and Fredericksburg. Every portion of the Potomac below Washington is accessible by steamers from that city, or Baltimore, or Norfolk. A line of railroad (the Richmond, Fredericksburg, and Potomac) extends from Quantico on the Potomac (accessible by steamer or railroad from Washington), due south along the head of tide-water by Fredericksburg, Richmond, and Petersburg, to Weldon, N. C. The Washington, Virginia Midland, and Great Southern Railroad runs from Washington by Manassas (where it connects with the Man-

assas Gap Railroad leading to Front Royal and Shenandoah Valley), by Gordonsville, Charlottesville (where it connects with the Chesapeake and Ohio Railroad,) by Lynchburg (where it connects with the Atlantic, Mississippi, and Ohio Railroad) to Danville (where it connects with the ferry,) by Baltimore and Ohio Railroad, where it connects with the Valley Road, extending to Staunton, where connection is made with the Chesapeake and Ohio Railroad. On either side of this Valley Road, at distances varying from five to forty miles, is found a great variety of game; deer, ruffed grouse (there called pheasants), bears, wild turkeys, etc. Most of the mountain streams have speckled trout—*Salmo fontinalis*—the more abundant and larger, the deeper you advance into the mountains, and the further from civilization. Perhaps the best trout fishing on the continent may be found in the head-waters of Cheat River in Pendleton, Grant, and Tucker Counties, West Virginia, and in the head-waters of the Greenbrier, in Bath and Highland, Va., and Pocahontas, W. Va., and in the Gauley River, in Nicholas and Webster Counties, W. Va. The Cheat River waters may be reached in forty miles from the Valley Railroad, and the others from the Chesapeake and Ohio Railroad in less than thirty miles.

The Chesapeake and Ohio Railroad runs from Richmond to Huntingdon (four hundred and twenty three miles), passing Charlottesville, Staunton, the famous White Sulphur Springs in Greenbrier, the Great Falls of the Kanawha, etc. After passing the Blue Ridge, this line supplies the greatest abundance and variety of game and the wildest field for adventure of any district in the State. Deer, bear, ruffed grouse, turkeys, and trout are more abundant and accessible than elsewhere; it presents a magnificent field for camping parties.

The Richmond and Danville Railroad extends one hundred and forty miles to Danville, and forms a part of the Piedmont Air-line to Atlanta. It traverses Middle Virginia, where the game mainly consists of quail, hares, squirrels and wild turkeys, and where the waters contain very few fish, dams and seines being fatal to them. Above Danville, on the Dan River, the case is different. There the game becomes more abundant, and the mountain streams have many trout.

Among the mountains of the State are found many wild hogs, which do not hesitate to attack the traveller, and are, without doubt, the most dangerous denizens of the mountains. They are usually found in herds of from five to twelve, and the sight of a human being is the only signal for attack that they require. The intruder has then nothing left him but to outrun them, or climb a tree and wait for them to leave. This would be a good place to go for those who like to be hunted as well as to hunt, so as to enjoy both phases of pleasure.

Accomack and Northampton Counties.—The eastern shore of

Virginia, composed of the counties of Accomack and Northampton, is a peninsula lying between the Atlantic Ocean on the one side, and the Chesapeake Bay on the other. It presents a very level surface, and has, perhaps, the best roads in the world, requiring but little attention to keep them in good condition. It is within easy access of Baltimore by a line of steamers, one of which leaves South Street wharf, in that city, every day at five o'clock P. M., except Saturday. The upper portion of the peninsula can be reached daily by rail from Philadelphia, the terminus being Greenbackville, on the sea side opposite to Chincoteague Island, and distant from it about five miles. A steam ferryboat conveys passengers from the depot to the island.

There is, perhaps, no portion of the country presenting greater attraction to the sportsman in quest of small game, such as quail and water-fowl, than this little strip of land. The former are abundant, and the peculiar geographical features of the country render the sport of hunting them both easy and delightful. The excellent character of the roads makes a ride of twenty or thirty miles but a trifle, thus enabling the hunter to go over a great deal of ground in a day, and the numberless creeks or small rivers indenting the coasts on sea and bay, form long glades fringed with yellow sedge, affording cover to the birds and protection from the hawks, while the absence of trees in such places insures to the hunter almost any number of shots "in the open." Snipe and woodcock are also found, but in small numbers. On the sea side, and to a great, though less extent on the bay, waterfowl, such as wild geese, brant, black mallards, shufflers or black ducks, red heads and all other kinds of duck, except the canvas-back, swarm in myriads, and are killed in great numbers every year; they are shot principally from blinds over decoys. On every part of the shore persons can be found who have large experience in this kind of sport, and whose services can be procured by visitors at reasonable rates. Perhaps the best point for this kind of shooting is Cobb's Island, in the county of Northampton, whose proprietors entertain each year, in winter, quite a number of sportsmen, and have all the appliances, such as boats and decoys, for their accommodation. The island itself is a noted resort during summer, and furnishes the best shooting among birds peculiar to that season that can be found on the eastern shore.

In summer, and, indeed, until November, fine fishing can be had in the waters of both sea and bay, the principal varieties caught being the drum, or sea bass, trout, mullet, spot, taylor, bluefish and sheepshead. Millions of sea birds, such as curlews, willets, grey-backs, brown-backs, and red-breasted snipe feed in the marshes and on the beaches, which skirt the sea coast from Cape Charles to the Delaware line, and furnish inexhaustible sport to the gunner. Foxes are numerous, and the good old English sport

of the fox hunt, with many of its primitive characteristics, still survives among the people of the eastern shore, who, indeed, have in an especial manner retained the peculiarities of their ancestors together with the purity of the old stock. They welcome gentlemen who come for enjoyment and recreation, and furnish them gladly every assistance in their power, but hold the pot hunter in detestation, and visit him, when caught, with the severest penalties of the law prohibiting hunting by non-residents.

The steamers from Baltimore land at different points in both counties, one touching twice at Onancock, within five miles of Accomac C. H., the county seat. The sportsman leaves New York by the steamers of the Old Dominion Steamship Company, which in summer, sail daily, and in fall and winter every Monday, Wednesday and Friday, from pier 37, North River, at 4 P. M.; Lewes, Del., is reached at 5 P. M. the next morning; at 9 o'clock a train starts for Berlin, Snow Hill and Chincoteague Bay, reaching Snow Hill early in the afternoon and the Bay by 3 or 4 o'clock. Return trains run daily, connecting with the steamer at Lewes on Tuesdays, Thursdays and Saturdays at 4 P. M., reaching New York at 5 A. M. on the following morning. Good hotels with horses and buggies or light wagons for hire, can be found at Chincoteague Island, J. English's Hotel $2; guides for wild fowl $5, for snipe $2.50; Accomac C. H.; Horn Town, T. Pittel's Hotel, $1.50; Onancock, Pungoteague and Belle Haven, in Accomac, and at Eastville in Northampton. Board in private families can also be obtained at fair rates. The Hog Island and Mock Island shooting grounds are always accessible by yacht, and guides are to be had.

Alexandria County—

Alexandria is headquarters for duck and snipe shooting, which are found in great numbers at Hunting Creek, the Ox Bar, Pentecost, opposite the Navy Yard, and other localities near the city. Plover, sora, reed birds, quail, partridges, rabbits and opossums, are found near the city. Black bass caught at the old coal wharf and in the canal above the basin, the anglers using grasshoppers for bait. Reached by boat and rail.

Amelia County—

Good deer hunting through the county. Take the Richmond and Danville Railroad, and strike out from any of the stations in the county.

Amherst County—

Melvers, a few miles from Lynchburg, is a good centre for deer shooting. Reached via the Washington and Virginia Midland Railway.

Appomattox County—

Tower Hill. Fine deer shooting here. Fox hunting is a favorite sport, and many gentlemen own fine packs of hounds. There are several ranges of hills in the county, with dense forests, where will be found the best of sporting grounds. Reached via the Atlantic, Mississippi and Ohio Railroad, and wagon drive. Excellent quail shooting is to be had, near Lynchburg, on the "turned out" lands and deserted plantations. Make headquarters at Lynchburg

Augusta County—

Staunton. The Shenandoah Valley and the mountains to the west contain much fish and game. Black bass, which were introduced into the streams of this region in 1871-72, now afford fine sport, and these waters have also been stocked

with land locked-salmon and trout. Partridge and quail shooting is good, and larger game abounds in the mountains. Staunton is headquarters of a sportsmen's association, and is a good initial point for the shooting and fishing of the region. Reached via the Baltimore and Ohio, and the Chesapeake and Ohio Railroads. By addressing Captain W. L. Bumgardner, at Staunton, sportsmen may obtain full information. Good quail shooting around Fort Defiance, seven miles from Staunton, by excellent drive.

Bath County—

Warm Springs. Within a radius of twelve miles are bears, deer, turkeys, and trout. Take the Chesapeake and Ohio Railroad to Millboro, thence stage. Mountainous country.

The Cowpasture River affords splendid trout fishing. The best bait here is grasshoppers, though the fly may be used with success. In all the streams of the county good baskets of fish will reward the angler. Go to Warm Springs which will be a good point for headquarters. Or reached from Staunton, twenty-five miles.

Bedford County—

Bedford. Quail, pheasants, ruffed grouse, wild turkeys, hares and foxes in abundance. Reached via the Atlantic, Mississippi and Ohio Railroad, thirty-seven miles from Lynchburg. Good hotels will be found here.

Forest Depot. Very good quail, fox and hare hunting. Reached as above, ten miles from Lynchburg. Sportsmen will find comfortable accommodations at New London, three miles distant.

Liberty, on the same road, twenty-five miles from Lynchburg, is an excellent centre for quail, hare and fox shooting. Hotels good.

Brunswick County—

Excellent deer hunting and beaver trapping throughout this county and Nottaway County adjoining it. Several trappers from the northern states have visited these regions and have been abundantly rewarded. Board is generally to be obtained at cheap rates. The trapping grounds may be reached via boat to Norfolk, thence via the Atlantic, Mississippi and Ohio Railroad inland to any of the towns of these counties, whence teams will convey one to the selected grounds. The Richmond and Danville Railroad will also be found a good line to start from.

Buckingham County—

Planterstown. Deer, turkeys, ducks, geese, snipe, ruffed grouse and quail in great abundance, with a few woodcock. The fishing includes silver perch, southern chub, white chub, pike, trout and other fish. Take the Atlantic and Mississippi Railroad to Farmville, thence wagon road.

New Canton, on the James, is the best point in the county for duck, goose and partridge shooting. A very inferior hotel here.

Buckingham C. H. is the best point in the county for sportsmen's headquarters. Reached same as Planterstown.

Campbell County—

Lynchburg. Good quail shooting is to be had within ten miles of the city. Many of the tributaries of the James, which rise on the eastern slopes and spurs of the Blue Ridge, have long been noted for their excellence as trout streams, and if they were properly protected and cared for would soon rival the choicest streams in the Adirondacks. There are half a dozen streams within a few hours ride of Lynchburg where as good sport may be had as in perhaps nine out of ten of the most famous trout streams of New York or New England. The trout of these waters range from a quarter of a pound to one pound and a half. The streams are generally a succession of cascades or rapids, and large, deep pools, and the banks sufficiently free from brush to afford a free use of the artificial fly. Lynchburg is on the Atlantic, Mississippi and Ohio, and the Washington and Virginia Midland Railroad. Conveyances to the fishing grounds are easily obtained.

Culpepper County—

Jeffersonton. This county is finely diversified by hill and dale and abounds in game. Turkeys, quail, partridges, rabbits and squirrels are always to be found in the vicinity of Jeffersonton. The route is via the Virginia Midland

Railroad to Warrenton, thence ten miles drive. By corresponding with George Myers, Jeffersonton, the sportsman will receive full information. Board can be had at Myers'.

Waterloo. Wild turkey and quail shooting. Route as above. Private board can be found in the village.

Dinwiddie County—

Petersburg. Deer are plenty in the vicinity. Good duck shooting on the Appomattox Flats, nine miles from the city. The county is a splendid field for deer. Provide camping equipments and strike out from Petersburg in any direction. The route is via the Atlantic, Mississippi and Ohio, the Richmond and Petersburg, or the Petersburg Railroads.

Elizabeth City County—

Old Point Comfort, twelve miles from Norfolk is headquarters for fishermen from that city.

Fairfax County—

Fairfax Court House. Deer, wild turkeys, partridges, quail; bass, rock fish, perch and other varieties of game and fish. Board at private house $1; teams to be had at any time. Reached via the Washington City and Virginia Midland Railroad.

Fauquier County--

Bealeton. Quail, rabbits and squirrels. Reached via the Washington City and Virginia Midland Railway, two or three hours ride from Washington.

Warrenton. Woodcock shooting. Reached via the Washington City and Virginia Midland Railway.

Frederick County—

Winchester. Wild turkeys are abundant in the vicinity and excellent deer shooting may be had in all the surrounding country. Reached via the Baltimore and Ohio Railroad.

Giles County—

Mountain Lake. Deer and small game are abundant in the mountains, with trout in all the streams. Twenty-three miles from Christiansburg which is on the Atlantic, Mississippi and Ohio Railroad.

Greene County—

Caseville. Deer, wild turkeys, woodcock, quail; and trout fishing good. Reached via the Chesapeake and Ohio, or the Washington City and Virginia Midland Railroad to Gordonsville, thence hired conveyance. Board in private family $2.50 to $3 per week.

Hanover County—

Hanover Court House, fifteen miles from Richmond, is visited by sportsmen from that city. Deer and quail shooting is good in the vicinity, and the fishing includes several varieties. Reached by stage or hired conveyance from Richmond.

Isle of Wight County—

A portion of this county is occupied by swamp and marsh lands in which much game is found. Deer, turkeys, ducks, quail, etc., are abundant throughout the county. A special feature of the hunting in this section of the State is the prevailing mode of fox driving, which furnishes exciting sport for mounted parties, with regularly trained fox hounds, beagles, etc.

Zuni Station, on the Atlantic, Mississippi and Ohio Railroad, is an excellent point for quail and duck shooting, and pike, black bass and perch fishing.

Windsor Station on the same road. Deer, wild turkey and quail within three or four miles of the station.

James City County—

Piney Creek. Excellent duck shooting on the Chickahominy and James Rivers. Reached via boat or wagon road from Williamsburg.

Landown County—

In the Kittocton Mountains in the centre of the county, and the Blue Ridge on

the northwestern border, game is very abundant and many sportsmen annually visit this part of the State.

Leesburg. Deer, partridges, quail, woodcock, and coons are found in large numbers in all the surrounding country. Bass, fall-fish and perch are caught in Goose Creek, and trout in Big Spring River. Reached via the Washington and Ohio Railroad, thirty-six miles from Washington. All necessary tackle can be procured in Leesburg at Baltimore prices. Boats can be hired from different persons at points on the river from White's to Edward's Ferry, varying in price from nothing to very little. Not long ago John Ault, near Red Rocks (the best bass ground on the river) furnished boats, live bait, etc., on reasonable terms. Board is reasonable in town or in the country. Bob White in the fall are abundant, woodcock in season used to be plentiful. There are many gentlemen taking interest in such pursuits, in the town and vicinity.

Snickersville. Snicker's Gap, of the Blue Ridge, is a famous quail ground. Woodcock abound there, and in the swamps are coons and opossums. Reached via carriage drive from Leesburg and other points.

Cad's Mill, *Little Falls*, *Payne's Eddy*, and *Georgetown* are favorite points on the Potomac for black bass and white perch. The Riffles, opposite Cad's Mills, is a choice spot for striped bass.

Montgomery County—

Big Spring Depot, on the Atlantic, Mississippi and Ohio Railroad, is a fine centre for the shooting among the mountains of the county. The Fort Lewis Mountains are the haunts of many deer and bears, while in the immediate vicinity of the town are found quail and hares. The fishing is varied and good baskets may be made.

Blacksburg. Bull-bats, quail, partridges, pigeons, wild turkeys, reed-birds, jack-snipe, wood-ducks, mallards, golden eyes, mergansers, deer, bears, and black bass fishing. Route same as Mountain Lake, Giles County.

Nansemond County—

The eastern portion of this county borders on the Great Dismal Swamp and partakes of the physical characteristics of that wilderness. The central and western portions are level and covered with forests of cypress and pine in which deer, turkeys, quail and other game are to be found.

Suffolk, twenty miles from Norfolk, on the Seaboard and Roanoke Railroad, is an excellent centre for quail and snipe shooting. Board can be obtained at private houses.

Nelson County—

Hardwickville is headquarters for excellent deer shooting. Reached via Washington and Virginia Midland Railroad, and stage or hired conveyance.

Norfolk County—

The Dismal Swamp, one vast morass, with little islands of solid ground scattered here and there, is the haunt of great numbers of bears, panthers, deer, coons, otters, ducks, geese, swans, turkeys, partridges and other game. Cat and other varieties of fish are found in its waters. The bears and panthers are seldom shot, as they retire into the vastnesses of the densest and most impenetrable jungles. The swamp is but little hunted and game there is unmolested save by the lumbermen or shingle-men who depend largely upon the rifle for their subsistence. The starting point for the interior of the swamp is Norfolk, where guides, cooks, provisions, row and sail boats, or steam-tugs may be secured. From Norfolk the route is up the Elizabeth River to Deep Creek, thence via the Lake Drummond Canal fourteen miles to Balakock, or, better, to Prentiss Duke's.

Norfolk. Ducks and geese, plover, willets, curlew, snipe, quail and other game. The fishing is good and embraces a variety of fresh and salt water species. Reached from New York via the Old Dominion Line of steamers, and via rail from all points in the interior.

Great Bridge, eight miles from Norfolk, via steamer or hired conveyance, is a good field for snipe and other shooting.

Pittsylvania County—

Mount Airy. Deer, ruffed grouse, and quail. Reached by stage or hired conveyance, one hundred and fifty miles south of Lynchburg.

Princess Anne County—

Sand Bridge is about twenty-six miles from Norfolk and is reached by private conveyance from that city. The marshes afford excellent duck and snipe shooting. Deer, turkeys and other game in the woods. Good accommodation may be obtained at Mr. Fork's.

Prince William County—

Neabsco Bay is a grand duck shooting field. It is visited by sportsmen from Washington and the neighboring cities. Reached by rail or boat.

Suratisville, twelve miles from Washington, is a good ground for partridges, rabbits and grey squirrels. Visited by Washington sportsmen.

Pulaski County—

Central Depot. Catfish weighing fifty-five pounds are caught in the New River. The woods in the vicinity are excellent hunting grounds for deer, turkeys, foxes, squirrels, and all the game common in the Virginia mountains. Fourteen miles from Central Depot are the New River White Sulphur Springs, which afford excellent catfishing. Take the Atlantic, Mississippi and Ohio Railroad. The hotels are good.

Martin's Station, on the same road, is in the vicinity of fair deer hunting. Wild turkeys are plenty, and quail, woodcock and snipe on the meadows.

Roanoke County—

Big Lick. Black perch, bass, red-eye and red-horse fishing in the Roanoke River, near the village, with abundance of partridges and hares in the neighborhood. On the Atlantic, Mississippi and Ohio Railroad, fifty-three miles from Lynchburg.

Salem. Fine fall fishing for perch, black bass and red horse, with splendid quail and hare hunting. On the same road, forty miles from Lynchburg.

Bonsack's. Excellent fox, bird and hare shooting. Reached via the Atlantic, Mississippi and Ohio Railroad. At the hotel, the sportsman will find a good pack of hounds.

Rockbridge County—

Lexington. On the marshes of the North River, reed birds are found in numbers sufficient to afford good shooting. Take the Washington and Virginia Midland Railroad to Amherst, thence stage, or go via the Chesapeake and Ohio Railroad to Goshen, thence stage. The Cedar Grove Hotel on the river, furnishes boats, and every convenience for the sportsman.

Rockingham County—

Rawley Springs. Fine trout fishing in the mountain streams. Excellent hotels. Take the Baltimore and Ohio Railroad to Harrisonburg, thence stage.

Shenandoah County—

Strasburg. The mountains in the vicinity are well stocked with deer and wild turkeys. An abundance of quail in the vicinity of the town. Reached via the Baltimore and Ohio, or the Washington and Virginia Midland Railway. Board at hotel and private house, $2.50 to $5.

New Market. In the adjacent forests, deer, bears and wild turkeys numerous; quail and woodcock in the swamps and field; good fishing in the North Fork of the Shenandoah. Reached as above. Board in private family $12 to $15 per month.

Smyth County—

Marion, on the western slope of the Alleghenies, is one of the finest game districts easily accessible to the sportsman. Bears and deer are found there, and wild turkeys, grouse, quail, and woodcock are abundant. There is good hunting all about the neighborhood of Marion, and accessible therefrom by good-mountain roads. Marion is on the Atlantic, Mississippi and Ohio Railroad. There are three good hotels in the town.

In Stanley's Creek, there is good trout fishing easily accessible from Marion. Black bass are also found, though not abundant, and are taken weighing six pounds, although the average is perhaps two pounds. The trout average a half pound apiece, and seldom attain a weight of two pounds. The number is said to have increased of late. Attention has been directed to fish culture in this section,

and a breeding pond has been established near Marion, at which place there is also an angling club.

Marion is also the point of departure for the excellent trout streams tributary to the Holston River. In this river black perch are caught. Fifteen miles from Marion is White Top, a mountain well known for its great height and the extended view from its summit. The streams at the base of this mountain are famous for trout but very seldom visited. Among them are the Laurel Fork, White Top Fork, Horse Creek, Fox Creek, and Helton Creek. Good accommodations can be secured at Seabird Dinkin's who lives at the foot of the mountain. Go via wagon to the base of Iron Mountain, thence tramp it.

Stafford County—

Acquia Creek. Excellent quail shooting; ducks and other birds abundant. Reached via rail or boat from Lynchburg or Washington.

Sussex County—

Littleton. Deer, wild turkeys, foxes, squirrels, rabbits, and on the Nottoway River, otters and beavers. The partridge shooting in the vicinity excellent. The route is via the Petersburg and Weldon Railroad to Stony Creek Station, thence stage or hired conveyance twenty miles.

Warren County—

Front Royal is a favorite mountain summer resort for Virginians. The black bass fishing in the Shenandoah, near this place, is fine. Reached via the Washington and Virginia Midland Railroad.

Water Lick, eighty miles from Washington, on the Washington City and Virginia Railway, is an excellent centre for quail and woodcock shooting.

Riverton. On the Shenandoah there is good fishing. The angler will find good accommodations at extremely moderate charges, with Major J. R. Richards, who for a long time refused to take pay at all, until his friends and visitors forced him to establish a moderate rate per diem.

Washington County—

Abingdon. Within six or eight miles of this town will be found fishing and game in abundance. On the Atlantic, Mississippi and Ohio Railroad, one hundred and eighty miles from Lynchburg. Hotels good.

WASHINGTON TERRITORY.

Washington is the extreme north-western Territory of the United States, and has an area of 70,000 square miles. The Cascade and the Coast Ranges, with other mountains, traverse much of the Territory, and give a mountainous character to the surface of the country. These mountains are some of the best hunting districts in America. The streams abound in salmon and trout and afford magnificent sport. The sportsman here should, as a rule, to enjoy the best sport, provide camping equipments, which can be procured at any of the larger towns, and go prepared for a several weeks' campaign. In fact, Washington Territory is a Sportsman's Paradise, whether it be for trout-fishing, deer-stalking, grouse-shooting or wild-fowling at the hunter's option. It does not equal California in the matter of quail-shooting, it is true; but there are six or seven varieties of grouse, which more than make up the inequality on quail. There are mule deer on the broad plains of the upper Columbia, the black-tail in the willow swamps of Caw-

litz and Chehalis, and the mighty elk in the lonely glens about Dungeness. Some of these days, the Eastern tourist will begin to consider that his mission is unfulfilled unless he visits there, the mighty inland sea, to wet a line in some of the streams that trickle from Rainier's icy crown, or give a death shot to the antlered monarch of the glen in the silent woods above the foaming cataract of Snoqualmie.

Clark County—

Vancouver. Black-tail and white tail deer, wildcats, and panthers. Reached via the Pacific Division of the Northern Pacific Railroad.

Jefferson County—

Port Townsend. Lopez Island, twenty-five miles distant, across Admiralty Bay, is a fine hunting ground for deer. The prevailing mode here is to chase them with dogs. Port Townsend is reached via the Pacific Coast Line of steamers from San Francisco.

King County—

Seattle. In winter the jack-snipe inhabits the tide lands about the delta of the Skagit and the sandy flats at the head of Seattle Bay. In the spring this bird is found along the slope of Mts. Rainier and St. Helen's.

Lewis County—

Cowlitz. In the willow swamps are black tail deer. Wild fowl are numerous in the surrounding country and the streams are full of trout and salmon. Reached via the Pacific Division of the Northern Pacific Railroad.

Chehalis is a good starting point for black-tail deer shooting.

Pacific County—

Shoalwater Bay affords excellent shooting for geese, ducks and snipe, which are very numerous. The best ground is five miles from the town of Unity. Mr. Henessy knows the ground well, and will serve sportsmen who call upon him.

Pierce County—

Puyallup. Clark's Creek near the town is a fine stream for trout fishing. Reached via the Coast Line of steamers from San Francisco, to the Coast cities, whence all inland points may be reached by stage or railroad.

Steilacoom City. Speckled and silver trout. The lake is an excellent place for troll fishing. Just below Chambers Mill, on Steilacoom, is good trouting. Go via Northern Pacific Road, the Pacific Division.

Thurston County—

Olympia. Speckled and silver trout in the Snohomish, Skagit and Nisqually streams, in McAllister stream and lake, nine miles from Olympia, and in the Turwater and Snoqualmie Falls. The route is via the Pacific Division of the Northern Pacific Railroad. The Northern Pacific steamers connect San Francisco with all points in Washington Territory.

WEST VIRGINIA.

The eastern sections are traversed by parallel ridges of the Alleghenies, and the remainder of the country is hilly, rugged and in some portions occupied by outlying spurs of the mountains. The State possesses much romantic scenery and is becoming one of the most popular regions for summer resorts in the South. The rail-

road communication is supplemented by excellent roads; there are numerous well appointed hotels in the neighborhood of the best hunting and fishing localities. Or where such accommodations are not to be had, no difficulty will be found in securing comfortable accommodations at the farmhouses. The trout and bass fishing, and deer, bear, fox and bird shooting afford abundant employment for many weeks of sport.

Grant County—

Williamsport is headquarters for bass fishing in the Potomac. See Jefferson County.

Greenbrier County—

This county is a fine region for beaver trapping. Reached via Chesapeake and Ohio Railroad. The country is mountainous.

Ronceverte. Bear, deer, wild turkey, woodcock, quail, ruffed grouse, squirrels; otters and minks. Reached via the Chesapeake and Ohio Railroad. Hotel $2.

Hardy County—

The *Moorefield Valley* is a great place for deer. At the northern end of the valley, the south branch of the Potomac finds an exit between two lofty mountains, forming a miniature canon for a distance of five miles. In this "Trough," as it is called, are situated the deer stands. The most famous is the "Sycamore," which takes its name from an old sycamore stump, now used as a seat for the watcher. The country is very mountainous and rugged. Take the Baltimore and Ohio Railroad, and stage.

Jackson County—

Sandy. Good general hunting, deer, grouse, squirrels, etc.

Jefferson County—

If any one contemplates a serious raid against the so-called black bass, he should by all means go to the Potomac or some of its tributaries. There is good fishing at various points, from the Great Falls to Harper's Ferry and Williamsport. Sandy Hook, about four miles below Harper's Ferry, is said to be an excellent stopping place, with fair accommodations. Dam No. 6, two miles above the station, called Sir John's Run, and about one hundred and twenty miles from Baltimore, is the best place for large bass on the river. The Capon comes in here on the Virginia side, and is reported to be well stocked. There is no public house at this place, and the angler must seek entertainment of some private family on the river.

Shannondale is a good headquarters for bass fishing in the Shenandoah River.

Harper's Ferry. A noted resort for black bass, which run from three to six pounds in weight. Reached via the Baltimore and Ohio Railroad.

Monroe County—

Sweet Springs. Deer, woodcock, pheasants, trout, and other game and fish very abundant, and within easy access from the hotel. The route is via the Chesapeake and Ohio Railroad to Allegheny Station, thence by stage, nine miles. Excellent accommodations can be obtained. The Springs are a well-known and much visited resort of pleasure seekers.

Morgan County—

Berkeley Springs. Deer, bears, turkeys, quail, ruffed grouse, pheasants, squirrels, rabbits, coons, etc., make up the game of this region. Black bass and trout are caught in abundance. For bass, favorite spots are the dam five miles up the Sir John's River, and Capon Creek, reached by a hard mountain tramp. Fitzmiller is an excellent guide, has a team, and will be found a good pilot for strangers. The route is via the Baltimore and Ohio Railroad to Sir John's Run, thence two and a half miles via stage. There is an excellent hotel here, $12 to $17 per week, and board may also be found at the farmhouses in the vicinity; $6 to $10 per week. It is a good plan to pitch a tent near some farmhouse, where pro-

visions may be secured. The country is rough and mountainous, and hard and fatiguing tramps are necessary for successful sport here.

Ohio County—

Wheeling. Good quail shooting is found on the Ohio River bottoms below Wheeling. Reached via the Baltimore and Ohio Railroad.

Randolph County—

Beverly. The mountain streams contain trout, and in the larger streams are found black bass. Reached via the Baltimore and Ohio Railroad to Webster, thence via wagon road. The country is difficult of access, and the fish not very large. Board can be obtained among the farmers.

Tucker County—

Hey's Wilderness, and the Blackwater Region. The Blackwater lies among the mountains twenty-six miles south of Oakland, on the Baltimore and Ohio Railroad. The stream is one of the extreme eastern affluents of the Ohio. It runs through a forest country of probably thirty miles in length and width, a tract of some nine hundred square miles, almost as wild as any part of the Rocky Mountains. In all this region, there is hardly a settler to the hundred square miles; in the part usually visited by trout fishermen, there is but one house, a lone log building ten miles from the nearest settlement, known among the mountaineers as "Dobbins." In winter the region is entirely deserted, but with the opening of the fishing season in May, a family by the name of Kitzmiller moves in and accommodates visitors with plain and substantial country fare. This is the only place in the wilderness where shelter or supplies can be obtained, except at "Cosner's," eighteen miles up the river. "Dobbins" is headquarters for trout, while for bear, deer, turkey and grouse shooting, the sportsman should go to Wm. Kitzmiller's, thirteen miles from Oakland, on the Baltimore and Ohio Railroad. To reach either point, a letter should be sent to William Kitzmiller, Oakland, Garrett Co., Md. He will provide conveyance thence into the wilderness. He furnishes board at $1.50 per day. Outfit can be procured at Oakland. Thomas Basley of Oakland will give all needed information. The Blackwater is a stream some thirty or forty yards in width, clear of driftwood and trash, and the chance for casting the fly on it is first-class. The fishing in the proper season, May, June and September, is magnificent. The trout average rather small, and have not the activity of those of more northern and colder streams. The large ones, however, will give the wielder of a light fly rod enough to do.

Wood County—

Parkersburg. By taking steamer up the Little Kanawha, thence up Hugh's River, ten or twenty miles, the sportsman will find excellent localities for camping. Deer and squirrel shooting is excellent; black bass and trout are caught in large numbers. Take the Baltimore and Ohio Railroad.

WISCONSIN.

Area 53,924 square miles; population, 1,054,670. The surface of Wisconsin is a rolling prairie, interspersed with numerous oak openings and a great number of lakes. The water system of the State comprises innumerable streams forming a complete network of magnificent fishing waters. The extensive forests, known as the Big Woods, are the haunts of bears, deer, and other game in such variety and abundance as to attract many sportsmen from other States. The fishing is good throughout the State; black bass, trout, and other varieties are always to be found within con-

venient distance from any of the numerous railroads which render accessible all points of the State.

Adams County—

Little Lake. Good deer shooting in the forests which cover a portion of the county.

Bayfield County—

Bayfield is situated behind the Apostle Islands, which land-lock a coast of over fifty miles, where boating in small boats is a matter of entire safety, and with the incomparable healthfulness of climate, pure water, and delicious fish of various kinds combine in affording attractions that can only be appreciated by those enjoying them. The special feature among the attractions of Bayfield is the numerous trout streams and the trout fishing along the coast in the vicinity. There are between twenty-five and fifty streams running into the lake within the limits of the coast protected by the islands, which seem to possess exhaustless numbers of brook trout, and in addition the fishing along the coast for the whole distance (about fifty miles) is unexcelled. The "rock fishing," as this coast fishing is termed, affords fine sport for the angler. These streams admit of fine boat-fishing near their mouths, and splendid stream-fishing farther up. Very large trout are taken in these waters, many weighing three and a half and four pounds. Deer hunting affords excellent sport in the neighboring forests.

Boats for Bayfield leave almost daily from Buffalo, Cleveland, Detroit, and Chicago, also from Duluth, eighty miles distant, reached by rail via St. Paul. J. B. Bono can comfortably accommodate twelve persons; George Stark can do the same; N. La Bonta four or five; William Herbert seven or eight; Mr. Milligan, on the Red Cliff Indian Reservation, where he is beautifully located, can accommodate several, and so can Colonel E. E. Henderson on a farm eight miles from Bayfield, and where one of the finest trout streams to be found in any country runs through the yard. These are all in addition to Smith's Hotel, which can accommodate about one hundred persons, and the Island House which has every facility for sportsmen ($2 to $2.50). There are three steam yachts that can be hired at any time at low rates, in addition to any number of small boats suitable for boating and fishing purposes.

Brown County—

Wrightstown. There are excellent shooting and fishing grounds in the vicinity. Deer, bears, ducks, geese, snipe, woodcock, partridges, pheasants and small game abound. Black bass and pickerel in the waters. For information write to Otto Guttrer. Reached via the Chicago and Northwestern Railroad. Board $3.50 per week; teams $1.50 to $2.50; Indian guides. Camping out is the best mode of hunting here. Hilly country.

Fort Howard. Deer, ruffed grouse, ducks, snipe; brook trout, lake trout, whitefish, bass. The fishing waters are Green Bay, and Fox and East Rivers. Reached as above. Hotels $2.50 to $3; boats and steam yachts; teams $6; services of driver $2. Excellent camping grounds.

Green Bay. The fine hotels and many attractions in and about Green Bay render it a very desirable summer resort. It can be reached by the Wisconsin Central, or the North-western Railroad from Milwaukee. It affords magnificent bass fishing and sailing, while adjacent streams flowing into Green Bay are well stocked with brook trout. There is fine hunting in season. There are three large, first class hotels in the city. The Beaumont House $3, $17.50 per week; Cook's Hotel $2, $5.50 to $12 per week; and The First National Hotel $2, $9 to $12 per week.

De Pere. Deer, duck, ruffed grouse, pickerel, pike, sturgeon in Fox River and Green Bay. Reached via Chicago and North-western Railroad. Board $1 to $1.50 per day, $3.50 to $5 per week; boats and guides $3.50 to $5; teams $4 to $6. Rolling country.

Clark County—

Excellent deer hunting is to be found in this county. Take the West Wisconsin Railroad to Humburd, whence other parts of the county are easily reached.

Columbia County—

This county furnishes some of the best pinnated grouse shooting regions in

the State. Take the Chicago, Milwaukee and St. Paul Railroad to Portage City. Thence all parts of the county are easily accessible.

Dane County—

Madison. On the lakes, geese, brant, wood-ducks, mallards, teal, canvas-backs, redheads, pin tails, bluebills, spoon-bills, grey whistlers, bald-pates, ruffle heads; on the Nine Spring Marshes, Wilson snipe, several varieties of plover, sand pipers, and rails; ruffed and pinnated grouse and quail. The fishing includes pickerel, black bass, catfish and a variety of whitefish. Madison is one hundred and thirty-six miles from Chicago on the Chicago and North western Railroad, and eighty miles from Milwaukee on the Chicago, Milwaukee and St. Paul Railroad. Hotels, boats, etc. See Rudd, Floyd County, Iowa.

Norway. Deer, bears, etc. Reached via the Wisconsin Valley Railway. Board $1.50. Hilly country.

Dodge County—

Beaver Dam. Quail, snipe, ducks, squirrels. On the Chicago, Milwaukee and St. Paul Railroad.

Fox Lake. A good ground for ducks. Take Chicago and North-western Railroad to McHenry. Stop at Harry Durnell's Hotel. A wagon ride of six miles from there will bring one to the shooting ground, which forms a part of a system of alternating ponds, lakes, marshes and swamps.

Burnett. Fine shooting grounds in the immediate vicinity. Ducks, geese, brant and swans are found in countless numbers. Reached via the Chicago and North-western Railroad. There are two hotels.

Horicon, on Horicon Lake, is a favorite resort for anglers. The lake contains a variety and abundance of fish. Reached as above.

Mud Lake. Twenty-eight miles east of Madison. An excellent shooting ground for ducks. Take the Chicago, Milwaukee and St. Paul Railroad to Hubbleton, whence the lake is four miles down the river. Boats can be had at Hubbleton.

Door County—

Sturgeon Bay. Excellent fishing for mascalonge, pickerel, black bass, salmon trout, whitefish, etc. Deer, ducks, water hens, pigeons, etc. Reached via steamer.

Douglass County—

The *Brule River*, thirty miles from Superior City, abounds in large speckled trout. Reached by steamer from Superior City.

Dunn County—

Menomonee is reached by rail from Chicago over the North-western Railroad and West Wisconsin Road, in a twenty-four hours' ride. At Menomonee are the famous "Tea Gardens," on Wilson's Creek, ten miles from Menomonee. This place is fast acquiring reputation for the number more than the size of its trout. The Tea Gardens have an established hotel that is devoted to sportsmen who visit there. Aside from this, many other streams, all tributary to the Chippewa and Menomonee Rivers, are to be found in this locality—and chicken hunting in season cannot be surpassed. John H. Knapp of Menomonee will gladly give information concerning future developments. The hotels are: The Menomonee, The Merchants, and The Central. Board $2; teams $4; guides $1.50; boats $1.50. Camp out for best sport. Bears, deer, elk, ruffed grouse and other game is to be found in the vicinity. Hilly country.

Dunnville is headquarters for duck and goose shooting. Reached by stage from Menomonee.

Eau Claire County—

Augusta. Sharp-tailed, pinnated, and ruffed grouse. Reached via the West Wisconsin Railroad.

Fond du Lac County—

New Cassel. Lake Fifteen and Long Lake contain a variety of fish. Game is found in great abundance in the adjacent country. Reached via the Chicago and North-western Railroad.

Van Dyne. Ducks, pinnated grouse. Lake Winnebago is within one and one-half miles, and furnishes good fishing. Reached as above. Hotel $1.50; guides $1.50; teams $1; boats 50 cents.

Fond du Lac, one hundred and forty-eight miles from Chicago via the Chicago, Milwaukee and Fond du Lac Air Line, is located on the southern end of Lake Winnebago which abounds in fish. (See Menasha.) Lake de Neveu, a beautiful sheet of water, is romantically situated about three miles southeast of the city. Eastward is Elkhart Lake, already famous for its natural beauties, and westward lies Green Lake, a noted summer resort. On all these lakes are pleasure boats propelled by steam, wind and man power. The waters of all these lakes furnish a plentiful and various supply of fresh-water fish, where the piscatorially-inclined can enjoy ample amusement. The Patty House and the American House are the best hotels. There are yachts and pleasure steamers on Winnebago Lake.

Green Lake County—

Green Lake is ninety miles northwest from Milwaukee. This is quite a large body of water, being some fifteen miles long and three wide. The shores comprise a pleasing variety of green slopes and rocky cliffs. The water is quite deep and cool, for which reasons the bass do not commence biting before September. Here is the best fall bass fishing in the State, and the fish are unusually large. Perch and pickerel are also caught. Pinnated grouse shooting in the vicinity; duck shooting is excellent. Take the Chicago and North-western road to Fond du Lac, thence via the Sheboygan and Fond du Lac Road. The shortest route is via the Chicago and North-western Railroad. The hotels on the lake are the Oakwood, Sherwood Forest, Walker, Collins' boarding house, and others. The Oakwood House is a handsome and commodious structure, advantageously located on the bank of the lake; it is kept open until November, and furnishes every convenience for the tourist or angler. A few miles west of Green Lake are Puckaway and Buffalo Lakes, renowned for their good fishing and for furnishing the best duck shooting in Wisconsin.

Jefferson County—

Fort Atkinson. Rock, Ripley, Cambridge, Rose Lakes, and Lake Mills, are near, and noted for their wild fowl shooting. Canvas-back ducks are abundant in all of them; mallards, teal, redheads, etc; bass, pike and pickerel. Reached via the Chicago and North western Railroad. Hotel and private board $1.50; boats $1; teams $3.

Hubbleton. See Mud Lake, Dodge County.

Watertown. On the Lowell Creek Marsh, a few miles from this place, is fine duck, brant, wild goose and other shooting. Reached via the Chicago, Milwaukee, Lowell and St. Paul Railroad, forty-five miles from Milwaukee.

Jefferson. Ducks, pinnated and ruffed grouse, and other small game; pike, pickerel, black and rock bass. Reached via the Chicago and North-western Railroad. Hotel and private board $1 to $2; $4 to $6 per week. Stage to Lake Mills, (fare 50 cents) where good fishing is to be had.

Juneau County—

Wonewoc, on the Chicago and North-western Railroad, is a good headquarters for sport. The surrounding country is broken and covered with timber, but offers fine hunting to the sportsman. Deer are abundant, and bears are not unfrequently shot.

La Crosse County—

Bangor. Excellent fishing and shooting can be found close to the village, in the La Crosse River, within a fourth of a mile of the town. Pike, pickerel, black and rock bass, and several other varieties of fish, are found in great abundance. A fine brook trout stream flows through the village, and half a mile from it is a large artificial trout pond, fully stocked with fish. In the woods which surround the village are found deer, squirrel, and wild turkeys. Many bird dogs are kept here for hire, and there is also a pack of hounds for fox hunting, owned by the Hon. John Bradley. The Bangor House will be found a comfortable home for hunters. Reached via the Chicago and North-western, or the Chicago, Milwaukee and St. Paul Railroad.

La Crosse. Woodcock and quail shooting in the Mississippi bottoms. Reached as above, and by other railroads.

Marathon County—

Mosinee. An excellent game centre for bears, deer, etc. Reached via the

Wisconsin Valley Railroad. Board $1.50. Guides are necessary, and can be secured at reasonable rates.

Wausau. For game and route see Mosinee. Board $2.

Pierce County—

Prescott, on the St. Croix River, is a good initial point for pinnated grouse shooting through the counties of Dunn, Polk and Barron. The southern border of Pierce County lies on Lake Pepin (see Minnesota).

Marquette County—

Montello. Mallards, canvas-backs and teal, on the marshes overflowed by the Fox River, woodcock, ruffed and pinnated grouse, snipe, wild geese. Scaup, bufled-heads and redheads are abundant on Buffalo Lake and Fox River. On the northern margin of Buffalo Lake, a small creek stretches away for four miles, and along this rice bound rivulet, the mallards are abundant. The mallards and teal are found in the marshes, which being covered with from one half foot to a foot of water, and the grass uncut, affords good chance of approach on foot, with high top rubber boots. Pickerel are the most numerous, and are caught in large numbers with trolling spoons and live minnows. Trolling is the favorite method of taking them, and the average catch is from three to five pounds each. At Collins Lake, three miles south of Muscalonge, they are taken with live bait or trolling spoon, and weigh from twelve to fifteen pounds. This is also an admirable place for bass fishing, and much sought by the enthusiastic anglers of the locality. At Buffalo Lake and other points near Montello, black bass are frequently caught of five pounds weight and upward. Perch are usually plenty in Fox River, though seine fishing has to a degree depopulated the river of these and other varieties of fish. On Puckaway Lake, canvas-backs, redheads, and other varieties of ducks, ruffed grouse, snipe, woodcock, grey, fox and black squirrels, rabbits, etc.

Gilroy's Creek, six miles west of Puckaway Lake, to which it is a tributary, is a favorite locality for grouse shooting. The Grand River, which winds its way south from the Fox River, is one of the favorite haunts of mallards, as also are the numerous sloughs and rice fields bordering on the lake. As the Grand River nears its head, it is difficult of navigation, but the splendid shooting more than repays for this. Montello is reached by drive from Portage City, Columbia County, or from Princeton on the Sheboygan and Fond du Lac Railroad.

Westfield. Ruffed and pinnated grouse, snipe, ducks, geese, and, in the pinelands to the north, plenty of deer. Take the Wisconsin Central Railroad

Monroe County—

Sparta. Trout are abundant in the neighboring streams, and perch in Perch Lake. It has been computed that there are more than two hundred and fifty miles of trout streams within Monroe County. There are numerous fine hunting grounds in the vicinity of Sparta, where bears, deer, and small game may be found. Take the Chicago and North-western Railroad. Several excellent hotels and private board, $5 to $7 per week; teams $4 per day.

Norwalk. Brook trout and many kinds of game are found in the vicinity. Reached as above.

Glendale. Within a radius of five miles are a large number of fine trouting streams. Game is abundant. Reached as above. The Glendale House is the resort of sportsmen. Two miles farther on the railroad is *Kendalls*, where are good hotels, and a half mile from here is Lake Torrence well stocked with brook trout.

Wilton is built at the head waters of Kickapoo Creek, which, with lateral streams, are full of brook trout. Bears, deer and squirrels are found in the surrounding forests, while pinnated grouse, partridges, pheasants, quail and grouse are plentiful in the clearings. The village has two hotels. Reached via the Chicago and North-western Railroad.

Oconto County—

Pensaukee. Game of many kinds abounds in the vicinity. Reached via the Chicago and North-western Railroad.

Peshtigo. Thunder Lake, River Medicine, Gravel and Trout Lakes, are near, and are full of fish. Pickerel, whitefish, pike, sturgeon, black, silver, and rock bass are the varieties. Brook trout are caught in great abundance in many of the streams of the vicinity. Deer, bears, ruffed grouse and other game are plentiful. The city

has several good hotels, where sportsmen are lodged and fed at very reasonable rates. Reached as above.

Outagamie County—

Appleton, in the Lower Fox River Valley, is a charming summer resort, which offers many attractions to the sportsman. The river abounds in fish, (see Menasha) the wild rice tracts are filled with ducks and in the woods are numbers of small game. Reached via the Chicago and North-western, or the Milwaukee, Lake Shore and Western Railroad.

Little Chute. For Game see Wrightstown. Route same as Appleton.

Kaukauna. Same as Wrightstown, which see.

Seymour. The surrounding country is densely wooded and the forests are full of deer, bears, and small game. Reached via the Green Bay and Minnesota Railroad. Wisconsin House, Seymour House, each $1.50.

Pepin County—

The Chippewa River empties its clear water into the Mississippi River one mile below the foot of Lake Pepin. All its branches are trout streams, and its water is much cooler than the Mississippi. It is a great lumber stream, and a great many ratts descend it to the Mississippi, and to the cities below. These ratts are strung along the shore for several miles, and the white salmon collect in vast numbers under them, where they are sheltered from the sun, and enjoy the cool water of the Chippewa. The minnows pass up the river in vast numbers just along side of the ratts, and an expert with scoop net will sometimes take a quart of minnows at one drive; enough to do a party for a day's fishing. The fishing for salmon is close along side the rafts.

The town of Reed's Landing, on the opposite side of the Mississippi in Minnesota, affords good accommodations and is convenient for anglers. For the fishing of Lake Pepin see Minnesota.

Portage County—

Junction. Bears, deer, and other game. Pike and pickerel in Rice Lake. Reached via the Wisconsin Central or Wisconsin Valley Railway. Hotel $1.50. Guides are necessary and camping out furnishes the best sport.

Racine County—

Racine. Pinnated grouse, pickerel and bass. Reached via the Chicago and North-western, or Western Union Railroad, or by boat. Hotel $1.50; boats 50 cents. Eagle and Wind Lakes are excellent fishing grounds.

Rock County—

Koshkonong. The fishing in Lake Koshkonong is good for bass, pickerel, pike, yellow and silver perch. Wild celery grows here in great abundance, and for canvas-back ducks this lake vies with the Delaware and Potomac Rivers, and with Chesapeake Bay. Red-heads, mallards, black-heads and spike-tails, geese, trout, swans, snipe, sora, quail, partridges and pinnated grouse make up the attractive list of the shooting on this far famed ground. The Koshkonong Club have a house here, and there are numerous hotels and boarding-houses. The route is via the Chicago and North-western Railroad.

Janesville. Mallard, Northern duck, snipe, pinnated grouse and other shooting. The angler will find excellent black bass fishing. Reached via the Chicago and North-western and the Milwaukee and St. Paul Railroads. Several good hotels.

Catfish Creek is the outlet of a chain of lakes called, First, Second, Third and Fourth Lakes, and empties into Rock River, twelve miles above Janesville. These waters afford fine fishing for bass, pike, and pickerel, and good shooting for ducks, geese, snipe, and other wild fowl. There is good fishing in both creek and lakes. Third Lake is filled with wild rice which affords abundant food for the birds. There is a fine hotel at Winnagua, near Third Lake.

Clinton. The surrounding country is prairie and affords fine pinnated grouse shooting in the fall. Reached via the Chicago and North-western, or the Western Union Railroads.

Beloit is on the Rock River in which is excellent fishing. Reached via the Chicago and North-western Railroad.

St. Croix County—

New Richmond. Elk, bears, deer, pinnated and ruffed grouse. Reached via

the North Wisconsin Railway, thirty-eight miles from St Paul. Board, boats and guides at reasonable rates; teams $5 per day. Camping is the preferable mode of hunting here. Country level prairie.

Pigeon River is famous for its wild goose and duck shooting. Pigeons are numerous at certain seasons.

Baldwin. Deer, pinnated and ruffed grouse, wild fowl. Reached via the West Wisconsin Railway, forty-one miles from St. Paul. Hotel and private board, $5 to $12 per week; teams $4.

Hudson is on Lake St. Croix. The largest Mississippi steamers ascend the St. Croix river to this point. Twelve miles southeast is Kinnickinnick River, yielding the finest brook trout, not only in the main stream but on the north and south forks. Tiffany Creek also abounds with brook trout. Bass Lake, eight miles northeast, furnishes excellent bass fishing. The pickerel and muscalonge fishing is good. The surrounding woods and prairies abound in game. Deer, pinnated and ruffed grouse, ducks, geese, etc., furnish abundant reward for shot gun and rifle. Take the Chicago and North-western and the West Wisconsin Railroads. At the Baldwin House, Amasa Walker, proprietor, sportsmen will receive every attention; private board can also be had, $1 to 2.50 per day; boats $1.50; teams $6.

Wausau. For game and route see Menomonee. Board $4 per week; teams $3 to $4 per day.

Sauk County—

Devil's Lake, a romantic spot, furnishes excellent sport for the angler. The waters are full of different varieties of fish. It is reached directly by two daily lines of palace cars, that leave Chicago morning and night via the Chicago and North-western Railroad, and stop in front of the hotel that has been opened for the use of the summer tourists who flock to the place. About fifteen miles west of Ableman's is the divide, and in the streams running west, brook trout can be found; in the streams running east, pickerel and bass.

Baraboo. Deer, an occasional bear, pinnated and ruffed grouse, in abundance. Fine trouting in the tributaries of the Baraboo and Kickapoo Rivers. Reached via the Chicago and North-western Railroad. Board $2.50.

Sheboygan County—

Elkhart Lake is sixty miles north of Milwaukee, on the Wisconsin Central Railroad, and is becoming very popular, and deservedly so. The lake is a beautiful sheet of water, and furnishes fine facilities for black bass fishing, boating, or sailing. There are two hotels on its banks, and both are well kept.

Trempealeau County—

Arcadia is on the Green Bay and Minnesota Railroad one hundred and ninety-two miles from Green Bay. There are many fine trout streams in the vicinity. The pinnated grouse shooting all through the county is excellent.

Walworth County—

In the county are twenty-four lakes, among which are Lakes Geneva, Crooked, Army, Potter's Booth, Lulu, Como, Turtle, Whitewater, Bass, Holden's, Grove, Middle, Mill, Otter and Pleasant, ranging from one-half mile wide and one mile long, to three or ten miles wide to ten or twelve miles long. All are stocked with fish, and on several of them are various pleasure boats, including yachts and steamers, and on the shores of several are club-houses and summer hotels.

Geneva, a delightful and growing place of summer resort, is situated at the foot of Geneva Lake, and is headquarters for the cisco campaign. But during the "run" thousands of people from the surrounding country visit the shores, hundreds of people tent on the beach, and scores of camp fires are seen on all sides in the calm summer nights. It is worth the while for any enthusiastic piscator to go a-ciscoing once in his life at least. He will very likely conclude that it is not equal to salmon or trout fishing, but he will find his skill and patience sufficiently taxed to make his first dozen ciscoes seem a genuine and thrilling victory. (See Elkhorn.)

Geneva is about sixty miles northwest from Chicago, and easily reached by rail via the Chicago and North-western Railroad. Good hotel accommodation and all sorts of boating facilities may be had at reasonable rates. Two fine side wheel steamers make regular trips from Geneva to Fontana and all intermediate points.

Elkhorn. Woodcock, pinnated grouse, ruffed grouse, Wilson snipe, Canada geese, brant, quail, ducks, including blue bells, butter-balls, ruddy ducks, pintails, widgeons, redheads, whistlers, scooters, canvas-backs, mallards, wood ducks, and teal. The game however is not of sufficient quantity to ensure success to sportsmen from abroad. In Geneva Lake fine sport is had with the cisco, the annual run of which begins about June 10th, and lasts for a week. Following the cisco run comes the regular fishing season, when may be had in any of the many beautiful lakes of this section capital sport with rod and line. Black bass, rock bass, pike-perch, pickerel, and yellow perch are abundant in all the waters.

Delaware Lake, four miles distant, is a favorite place for pickerel and trolling.

Elkhorn is on the Western Union Railroad. Hotel and private board $1 to $2 per day; guides, rarely necessary, $1.50 to $2 per day; boats 50 cents.

Troy. Cisco and other fishing in Troy Lake.

Waukesha County—

Pewaukee. Nineteen miles west of Milwaukee, on the Chicago, Milwaukee and St. Paul Railroad is the pleasant lake and village of Pewaukee. This lake is six miles long and a mile wide, and the black bass fishing most excellent. Heath's Hotel and the Oakton Springs Hotel, in the village, and the Lakeside, further up the lake, furnish accommodations of the best kind.

Oconomowoc, is twelve miles west of Pewaukee, and thirty miles from Milwaukee on the Chicago, Milwaukee and St. Paul Railroad. As a summer resort it is popularly known as the "Saratoga of the West," and in sporting parlance it is an "Angler's Paradise." Within a radius of eight miles there are no less than thirty lakes, varying from one to several square miles in extent, and teeming with black bass, Oswego or green bass, northern pickerel, and the smaller fry of rock bass, silver bass, yellow perch, cisco, etc. In the vicinity the sportsman will find woodcock, pinnated, ruffed and sharp-tailed grouse, wild geese, brant, ducks, plover and snipe. The favorite lakes with anglers are La Belle, Fowler, Okauchee, Oconomowoc, Nemahbin, Nashotah, Nagowicka, Genesee, Pine, Beaver, North, Silver, and Golden. They are all well supplied with fishing boats, and at Oconomowoc experienced guides and boatmen can be obtained at a moderate price. The hotel accommodations are ample and excellent, and terms reasonable. The Townsend House, on Fowler Lake, Draper Hall, La Belle House, and Woodlands are beautifully located, and are very handsome and convenient in their appointments. Gifford's, on Oconomowoc Lake, is very romantically situated, and is quite a favorite resort. In addition to these hotels are numerous boarding houses, agreeably and pleasantly situated, and well conducted. Owing to the remarkably fine roads the livery stables are unusually good, with lively-stepping horses and first-class vehicles. J. C. Hitchcock & Co., manufacturers of the "Oconomowoc bass rod," keep a full stock of fishing tackle of all kinds, and the angler can here procure everything necessary to his sport. Black River has rock and black bass.

Winnebago County—

Menasha and Neenah. These twin cities are one hundred miles north of Milwaukee, and can be reached by either the Wisconsin Central Railroad or Northwestern Railroad. They lie at the foot of Winnebago Lake, on either side of Fox River, the outlet of the lake. This is the largest lake in Wisconsin, being thirty miles long with an average width of five miles. On the opposite side of the cities is Lake Buttes des Morts. The bass fishing here is very good; the Neenah channel of Fox River is especially good for fly fishing. The rapids of the lower Fox River also furnish some of the finest of sport. Kaukauna rapid in particular, nearly a mile in extent, is a wild eddying part of the stream, grand in its scenery and rich in ragged shelving rocks and dark deep pools, that are well filled with large, dark colored, rather slim, active fellows that are no burlesque on western civilization; and the Nimrod who can preserve his light tackle in order, and retain his fish in some of the headlong races he must make down the stream over boulders and brambles with one of these fellows on the lead for his favorite pool, must lose all thought of self and the consequence of a disordered appearance at the close of the race. Garlic Island is another good spot. The bass are mostly of the small-mouth variety. Here are also found the white bass, the pike perch, pickerel, catfish, bullheads, shad, taken here with fly, and, to the occasional disgust of the angler, the sheepshead, not *Sargus ovis* but *Corvina oscula*. The sturgeon also holds high carnival in these waters, sometimes attaining the weight of two hundred pounds. The National Hotel at Menasha is the angler's resort.

It is well ordered and ably conducted. Boats, oarsmen, and all necessary appurtenances for fishing are furnished by the host. The Russel House in Neenah also furnishes good accommodations, and there boats, etc., can be obtained. Board $2; teams $3 to $5. (See Fond du Lac.)

Oshkosh is at the mouth of Fox River, on the western shore of Lake Winnebago. Wild game is abundant in the vicinity, and is composed of blue and green-winged teal, mallard and wood duck, snipe, woodcock, quail and pinnated grouse. The waters abound in black and white bass and other fish, and brook trout are plentiful in streams within a day's travel. Oshkosh is on the Chicago and Northwestern and the Chicago, Milwaukee and St. Paul Railroads. There are several fine hotels.

Wood County—

Centralia. Bears, deer, grouse, and different varieties of wild fowl. Reached via the St. Louis, Kansas City and Northern Railroad. Board at hotel $2.

Remington. Bear, deer, pinnated grouse, ruffed grouse. In all the streams trout are abundant. Reached via the Chicago, Milwaukee and St. Paul Railroad to Tomah thence via the Wisconsin Valley Railroad. Board $1.50.

WYOMING.

The area of Wyoming is 97,883 square miles. The population in 1870 was 9,118, and has been, since that year, increased by the immigration to the mining fields of the Black Hills. The surface of the country is high and mountainous, the mean elevation being 6,450 feet. The main chain of the Rocky Mountains entering at the south-eastern border extends through the Territory in a north-western direction. There are in addition to these, many other spurs and chains of mountains, the Wind River, Big Horn, Black Hills, etc. The Laramie Plains, an extent of 7,000 square miles, are made up of extensive meadows, and rolling hilly country, and are among the finest hunting grounds in the country. In the North-western corner of the Territory is a section of 3,575 square miles, the Yellowstone Region, which for natural wonders has no equal of the same area upon the globe. The Union Pacific Railroad, the Union Pacific and the Kansas Pacific Railroad, are the principal means of access, via Cheyenne and other points, to all parts of the Territory. Pack and saddle horses, and all equipments may here be secured.

Albany County—

Como. Deer, elk, antelope, mountain sheep and bears, a few miles distant in the timber land. Ducks and geese in abundance. Reached via the Union Pacific Railway. Board $1. For bear and mountain sheep hunting, camping is necessary. Country hilly, rocky and timber lands.

Lookout. Elk, antelope, and black tail deer, are found in Medicine Bow Mountains, twenty miles south. Pinnated grouse, ducks and geese are in abundance. Reached via the Union Pacific Railroad. Camping is necessary; guides can be found at Laramie. Hilly country.

Tie Siding. Elk, deer, antelope and rabbits very abundant. Good trouting. Reached as above. Board $7 per week; teams $5. Camping outfits can be procured here.

Miser. Deer, elk, antelope, mountain sheep, jack rabbits, geese and ducks. Reached as above. Board $1. Mountain country.

Laramie City. Elk, antelope, deer, mountain sheep, bears, sage hens, ducks and geese. Reached as above. Guides $2 to $4; teams $5.

Fort Saunders. Perhaps the best elk country is on the Laramie Plains, in the vicinity of Fort Saunders, on the Union Pacific.

Carbon County—

Medicine Bow. Elk, deer, antelope, sage hens. Reached via Union Pacific Railroad. Board $3; teams $5. For good sport, camping is necessary. Rolling and mountainous country.

Percy. Elk, antelope, black tail deer, beavers, otters, etc. Mountain trout in the streams, twelve miles from the station. Reached as above. Private board $1.50; guides can be procured. Country rolling prairie.

Separation. Antelope in abundance, deer, elk, mountain sheep, a few black bears and cinnamon bears; sage hens and jack rabbits plenty. Reached as above. Private board $1; guides $3; saddle and pack horses $4. Camping outfit can be purchased at Rawlins, a station fourteen miles east. The country is rolling prairie, hills and mountains.

Rawlins. Bears, elk, black tail deer, mountain sheep, antelope, sage hens, jack rabbits; good trouting in the mountain streams. Reached as above. Board $1; guides $2.50 to $3; teams and driver $4 to $6. The country mountainous, with excellent camping grounds.

Carbon. Elk, antelope, deer, bears occasionally, mountain sheep, sage hens, rabbits, hares; fish of different kinds. Reached as above. Hotel $2; guides $3 to $5; teams $7. The country is hilly and mountainous, with excellent camping grounds.

St. Mary's. Bears, elk, black-tail deer, antelope, some mountain sheep, jack rabbits, sage hens, mountain grouse. Reached as above. Private board $1; guides $2. Provide for camping. Country hilly.

Fort Steele. Elk, deer, antelope, mountain sheep, sage hens, ducks and geese. Fish of different varieties. Reached via Union Pacific Railroad. Board $1; teams $5. In bad weather the game are found in the valleys; in fine weather they retire to the mountains.

Laramie County—

Cheyenne City. Deer, elk, antelope, bears, mountain sheep, mountain lions; excellent trouting. Reached via the Union Pacific Railroad. Hotel and private board, $1 to $4; teams $5.; guides at reasonable rates. For best sport camp out. Rolling prairie, with the Rocky Mountains fifty miles distant.

Pine Bluff. Black-tail deer, and mountain sheep are abundant on the hills, antelope on the prairies, bears on Horse Creek, twenty-five miles north. The route is as above. Board in private family $1. For hunting on the hills, camping is necessary.

Hazard, twenty miles from the Black Hills. Antelope, black tail and white-tail deer, geese, sandhill cranes, ducks of all kinds, jack snipe, curlew; and trout in the Black Hill streams. Reached via the Union Pacific Railroad. Board at ranches $2; teams with driver $5. Country hilly and rolling.

Spear Fish Creek. Rapid Creek, Spring Creek and Redwater are full of pike, perch, catfish, bullheads, suckers, etc. Reached from Deadwood City, on the Union Pacific Railroad.

Sweetwater County—

Green River City. The Green River country offers many attractions to the sportsman or trapper. The brooks furnish trout by thousands -from half a pound to four pounds in weight—active, plucky fish, that it is a pleasure to hook and a satisfaction to land. Beaver are very plentiful, and their dams may be found at intervals of half a mile on every moderately large brook. Otters, too, are trapped in considerable numbers every winter, though not so numerous now as in former years. These, with the mink and fisher, are the finer fur-bearing animals of the country. The felinæ are represented by the lynx and the mountain lion; the latter rarely seen.

Deer and elk are numerous in the bottoms and on the mountains, a few antelopes frequent the elevated plateaus that occur from time to time along the river, while the loftiest peaks afford a secure refuge to the wary mountain sheep. When hunting along the river or some of its tributaries the hunter will often notice the track of the ferocious grizzly, or of his smaller and more timid congeners, the black and cinnamon bears. Sandhill cranes, together with geese and

ducks in countless numbers pass over in spring and autumn, and pause at various points to feed and rest. Three species of grouse—the sage, the blue and the ruffed—are found in the bottoms and on the mountain's sides, while close beneath the snow line breeds the white tailed ptarmigan. Reached via the Union Pacific Railroad. Board $3.50 to $7 per week; teams with driver $5. Camping affords the best sport.

Red Springs. Black-tail deer are very abundant but hard to approach because of the scarcity of timber. Elk and antelope are plenty within a radius of thirty miles. Ducks, geese, grouse and sage hens afford fine sport. Trout are to be found in all the streams in the neighborhood. Reached as above.

Bryan. Antelope, black-tail deer, jack rabbits, sage hens. Route as above. Board in private house $1; guides $3 to $4; teams $5 to $8. Rolling prairie.

Black Buttes. Deer, antelope, elk and bears twenty miles south. Reached as above. Board in private house, $1; guides, saddle horses, etc., to be had. Mountain country.

Creston. Antelope abundant, sage hens, jack-rabbits and cotton-tails. Elk and deer in limited numbers. Buffalo are found forty miles north. Reached as above. Sportsmen must carry camping outfit. Good ponies can be bought here for $40 to $60. The country is rolling prairie, with hills and mountains.

Point of Rocks. Elk, deer, antelope, buffalo, bears, jack-rabbits and sage hens. Excellent trout fishing in the Sandy Creeks. Reached as above. Pack and saddle horses can be procured. Hunting parties camp out. The best hunting and fishing grounds are at the Sandys, thirty miles distant.

The Big Horn Mountains. Big horns, buffalo, elk, mountain sheep, black-tail deer, beavers, otters, minks, grey wolves, coyotes, foxes, including the silver grey, panther, wildcats, lynxes, two species; black, cinnamon, and grizzly bears; dusky grouse. Trout and a species of whitefish are caught in the Big Horn, Little Horn, and Tongue Rivers. The mountains are densely timbered with pine and spruce. Their elevation is about thirteen thousand feet above the level of the sea, and they are covered with snow in summer. They contain innumerable beautiful lakes. Take Union Pacific Railroad to Benton or some station in that vicinity, thence go via saddle-horse.

Uintah County—

Fort Bridger and the Uintah Mountains. Fort Bridger is eleven miles south of Carter, a station on the Union Pacific Railroad. Twenty-five miles south of the Fort are the Uintah Mountains, a splendid country for the sportsman. The game here includes bears, mountain sheep, deer, elk, antelope, grouse, sage hens, mallards and black ducks, the Western fluker, sandhill cranes, and ptarmigan. The streams and lakes abound in trout, and near Carter are caught a few whitefish. There is daily communication between Carter and Fort Bridger. Camping outfits can be procured at either place. Board $3; guides $2.50; teams $5 to $8; saddle-horses $2.

Bridger. Elk, black-tail deer and grouse are very abundant, with good trouting. Reached via the Union Pacific Railroad. Teams with driver $3. Rolling prairie and hills.

Aspen. The Uintah Mountains are eight miles south. For the game found there see Fort Bridger. Reached as above. Board $2; teams with driver $5.

Evanston. Bears, elk, antelope, deer, sage hens; trout. Best hunting from ten to forty miles distant. Reached as above. Board $1.50 to $4; teams with driver $4 to $7. Country rolling and hilly.

Piedmont. Black-tail deer, elk, bears, sage hens, jack-rabbits and brush-rabbits. All the mountain streams abound in mountain trout. Reached as above. Private board $5 per week; teams $2 to $3; pack and saddle-horses $1. Mountainous country.

Hilliard. Bears, elk, deer; good mountain trout fishing, with other varieties of fish and game. Route as above. Hotel and private board $1 to $3; teams $4 to $7. Camping necessary. Hilly and mountainous country.

Walla Walla County—

Walla Walla. Deer and bears; mountain trout. Reached via Central Pacific Railroad to Kelton, thence stage. Hotel $2. The country is mountainous and heavily wooded.

DOMINION OF CANADA.

ONTARIO.

ONTARIO, the Upper, or Western Province of Canada, has an area of 107,780 square miles, and a population of 1,620,851, which is confined mostly to the Southern and South-western sections; the region north of Lake Huron and Lake Superior is inhabited only by a few Indians and the Hudson's Bay Company's employees. The surface of the province is gently undulating with extensive prairie lands. A ridge of elevated land stretches from Niagara Falls north-west to Hamilton, thence along the peninsula between Lake Huron and Georgian Bay, and through to the Manitoulin Islands. These hills, in some places wild and rugged, are, as a rule, rounded with gentle slopes and wide fertile valleys. The country is remarkable for the great number of the lakes which everywhere stud its surface. The region from Lake Ontario, north between Georgian and Ottawa Bays, and thence around Lake Superior, is covered by a perfect net-work of lakes and rivers. These waters are stocked with the finest of salmon and trout, and offer to the piscatorially inclined abundant opportunity for weeks of enjoyment and pleasure. The Southern part of the province has been nearly depleted of the larger animals, but in the North and West are vast tracts of unbroken wilderness where game is still found in almost primitive abundance. From the railroad and steamboat lines of travel, excursions may be made into the wilderness country, and for this purpose, the visitors will always find trustworthy guides, usually Indians, and at any of the larger towns or at the Hudson's Bay Company's Posts, full outfits are to be secured at prices much more moderate than in the States. The salmon-fishing of the Dominion of Canada is under Government control. "The government leases the rivers for a term of nine years, and rivers unlet on the first day of each year are advertised by the government to be let to the highest bidder. The places of residence of those tendering for fishings are not considered in letting a river; and if a gentleman from the States outbids a Canadian, the river will be declared as his. Rivers are therefore hired by Europeans as well as by Canadians and citizens of the States. . . . Rivers are let in whole

or parts, each part permitting the use of a given number of rods, usually four. Parties who desire to lease a Canadian river should address a letter to the Minister of Marine and Fisheries, at Ottawa, stating how many rods they have, and the district which they prefer to fish. He will forward them a list of the leasable rivers, and a note of information, upon which they should get some Canadian to make the tender for them. The leases of fluvial parts of rivers vary from two to six hundred dollars a year for from three to eight rods, and the price for guides or gaffers is a dollar a day." — Genio C. Scott's *Fishing in American Waters.*

District of Algoma—

Michipicoton Island, in Lake Superior, is in summer a stopping place for the Collingwood steamers. Large trout are caught in the adjacent waters. Supplies may be obtained at Michipicon River, which is a Hudson Bay Company's Depot.

Sault Ste. Marie. The streams flowing into the St. Mary's River, Garden River, Root River, and Hay Lake and its outlet afford excellent trout fishing and the last named good duck shooting. Along the north shore there are several well known trouting localities, distant from fifteen to forty miles. Indian guides, canoes, etc., are to be had for all these places. Gaulais Bay, Batchewanaung Bay and River, Harmony, Montreal and Agnawa Rivers. The route to Sault Ste. Marie is via steamer from Collingwood, Ont., or from Buffalo, Cleveland, Detroit, Chicago or Milwaukee. Good hotels on either side of the river. (See Michigan.)

The Nepigon River. The river is forty-five miles long to the great Nepigon Lake at its head, and is broken by fifteen chutes or falls, at all of which is the best of fishing. It has an average width of two hundred yards, and at frequent intervals widens into lakes two miles and more in width, in which the whitefish and the great lake trout dwell. Camping ground is excellent everywhere, and there is a beaten trail across the portages, over portions of which a wagon might pass with ease; for this has long been a thoroughfare for the Company's employees, who, once a year at least, bring down their furs and carry back their annual supplies to Nepigon House above. There is ample casting room throughout. The depth varies from twenty to two hundred and fifty feet, and the water is so cold at all times as to benumb the limbs. Its temperature is about 42°. In September partridges (ruffed grouse) are very plenty and the forests abound in bears, rabbits, and other fur-bearing animals and small game. There are a few caribou, but no deer nor any other species of the genus *Cervus*. Trout, pike, pickerel, salmon trout, and whitefish in greatest possible abundance. By August the flies and punkies disappear and the trout become fat and gamy; for they spawn later here than in most other localities. The Nepigon is reached via steamer from Toronto, Ont., or Duluth, Minnesota, to Red Rock Landing at the mouth of the river.

From Toronto there is a choice of routes either to Collingwood or Sarnia, whence good boats run to Sault Ste. Marie, and from there, the first to the north shore of Lake Superior, and the other to the south shore, touching at Marquette and other points, and on to Duluth. The North Shore steamers connect at Prince Arthur's Landing with other boats for Duluth, one hundred and forty miles distant. A favorite route for Americans is from Buffalo via Lake Erie to Detroit, and thence through Lake Huron to Sault Ste. Marie. Residents of States west and north of New York, will naturally make Detroit their objective starting point. A round trip ticket via the Collingwood route, costs thirty-five dollars gold, which includes meals and stateroom. The fare from New York City via rail, to Niagara Falls, thence boat to Toronto, is eleven dollars fifty cents; so that the cost of the entire trip from New York and return is about sixty-five dollars currency. The actual running time of the trip occupies ten days.

Red Rock is a Hudson's Bay Company Post, where the sportsman will find excellent accommodations with Robert Crawford, the agent. From him must be procured the necessary fishing permits, without which no angler can fish in the Nepigon. He will furnish almost everything requisite for camping out; cedar boats, and birch canoes, tents, blankets, woolen shirts, Hudson's Bay over-

coats, corduroys, cigars and tobacco, canned fruits, desiccated meats, condensed soups, milk and coffee, pickles, English ale, whisky for medicinal use, New Testaments, flour, pork and ham, cutlery, boots, shoe-packs at ridiculously low prices. Good guides and Indian canoe-men can be had at a dollar per day each. The angler must take his own fishing tackle, including a stout rod, and red and brown hackles. From the Middle of July through August and September is the best season for fishing.

Brant County—

The lakes and ponds in this county contain a variety of very large black bass. Grand River and its tributaries, Smith's and Homer's Creeks are well known localities. At Ivy's mill, on Homer's Creek is a deep hole where they often congregate in great numbers in June.

The Coulonge District—

Is one of the best in Canada. It lies partly in the Province of Otanrio, and partly in the Province of Quebec, the Ottawa River forming the dividing line between these game centres. In order to reach either of these localities, take the Great Western Railway to Brockville, on the St. Lawrence River, and thence by the Canada Central, to either Sand Point or Renfrew.

If the desire is to visit the Coulonge district, to kill moose, caribou, bears, wolves, trap fur animals, and angle for trout, leave the cars at Sand Point. From here take the river boat to Portage du Fort, twenty miles north. At this place, provisions and camping essentials must be secured, together with a conveyance as far as the foot of the Coulonge River. Moose and fur animals are found eighty miles up stream; caribou are not met with, save far up the river. The hunting region proper lies between the Black River and the Coulonge, which are distant from each other at the most extreme points, not more than twenty miles, the average being not more than ten. There is excellent angling in these streams.

Should Virginia deer be the game desired, together with bears, wolves, lynx and water animals, then go on to Renfrew. This village is twenty miles north of Sand Point, twelve miles west of Ottawa River, and about one hundred and fifty miles north of the St. Lawrence River. Seventy miles due west, toward the Georgian Bay, reached by team, is the Adirondack district of the Canadas. The route traverses the beautiful and picturesque Bonne Chere River, which is one succession of lakes. Here are Mud Lake, Long Lake, Round Lake, and Trout Lake. This lake region lies between the Ottawa on the east, the Georgian Bay on the west, and Lake Nipissing on the north. This area contains about the same number of reported lakes as the Adirondacks, and it is probable that there are hundreds yet undiscovered.

At Eageausville, twenty-five miles from Renfrew, on the Bonne Chere, guides and provisions may be obtained for any of the lakes. The majority of trappers and hunters seldom penetrate beyond Round Lake, which is the home of the Virginia deer and of the speckled trout. Trappers and hunters are to be met with on almost every creek, lake, river, and stream that contains fur animals. They go in search of furs about the first of September.

The Virginia deer are, during the months of September and October, hunted with dogs, and usually killed in the lakes where they run to escape the hounds. In November still hunting commences, and continues until the end of the season.

Glengarry County—

Lancaster. Lake St. Francis, an expansion of the St. Lawrence River, affords good fishing in the autumn. Reached via steamer from Montreal, or Grand Trunk Railway. Hotel accommodations at the village, and also at Hopkin's Point, on the opposite side of the river.

Grenville County—

Charleston Lake is some twenty-two miles back of Gananoque, reached by row boat from Gananoque River and Wilsey Creek, also by stage from Brockville, seventeen miles. This creek flows through drowned lands, and in the proper season is full of ducks.

The black bass at Charleston Lake are very small, averaging one and three-quarter pounds, but are very gamy, a one pound bass giving as much sport, as a three pound St. Lawrence bass. Salmon trout also plentiful.

There are two fair hotels, charging one dollar per day. Boat accommodations poor. The lake is full of islands, and affords excellent camping grounds.

Grey County—

Presque Isle Harbor, on Lake Ontario, fine ducking ground. Grand Trunk Railroad from Coburg or Kingston. Hotel accommodation. Country hilly.

Hastings County—

Belleville. A fine place for black bass, especially in the month of May, when they are taken in large quantities by the fishermen in seines. The shooting includes snipe, plover, ducks, partridges and red foxes. Belleville is on the Bay of Quinte, an expansion of the St. Lawrence River, and is reached by steamboat and the Grand Trunk Railroad. There is a game club here, and good hotel accommodations, boats, etc.

Bay of Quinte. Kingston and Belleville are on this bay. Excellent black bass, pike, perch, and mascalonge. Reached by Grand Trunk Railway. Every accommodation.

Kingston County—

Kingston. There is a section of country situated in Canada, near Kingston, known as the Drowned Lands. To reach it from New York City, take New York Central and Hudson River Railroad to Rome, Watertown and Cape Vincent. All baggage checked through. At Cape Vincent you can make any necessary inquiries at the hotel, where the Kingston steamboats stop. In Kingston, the British American Hotel is near the boat landing, and well kept. The Drowned Lands district is accessible from Kingston by various routes; pretty well fished, and shooting fair. Bass and pickerel are caught in the Bay of Quinte, at Kingston.

Lanark County—

Perth. Deer and partridge shooting, and fair trapping in the vicinity. The fur bearing animals include otters, minks, beavers, foxes and coons. Reached via the Brockville and Ottawa Railroad.

Clayton. Fine bass fishing in the St. Lawrence at this point. Clayton is eleven miles from Almonte, on the Brockville and Ottawa Railroad.

La Prairie County—

La Prairie, south side of the St. Lawrence. Among the islands in the Lachine Rapids, bass are found in abundance, and there is splendid duck shooting, especially in the spring when the ice breaks up. A boat runs from Montreal to La Prairie, which is nearly opposite. From there take a hack and boatman, and drive down to the fishing ground. Desaultel is popularly and favorably known as a guide and sportsman, which, indeed nearly all the villagers are. Charges are trifling.

Lincoln County—

St. Catherines. Quail shooting. Reached via the Great Western and Welland Railways. Good hotels.

The Muskoka District—

One of the most attractive regions in Canada for summer tourists embraces what is known as the Northern Lakes, a chain lying north of Toronto, and comprising Lakes Simcoe, Muskoka, Rosseau, and Cocochong. This is a popular resort for sportsmen, and supplies the best bass fishing to be had in Canada, as well as superb trout fishing. The lakes vary greatly in size; the larger ones thirty or forty miles in length, and the smaller ones mere ponds, but clear and deep, and all abounding in salmon trout, perch, black bass, etc. The principal rivers are the Muskoka, with its two branches, both heading in lakes, and broken by many falls; the noble Magnetewan, the Severn, Moon River, Sharpe's Creek, South River, and the Kasheshebogamog. Large trout abound in the South branch of the Muskoka, which is broken by thirteen falls. This stream is some ten rods wide and uniformly deep, with forests impinging upon the margin, in which deer are very numerous. There are but few ruffed grouse and but little small game. In the North Muskoka, there are no trout. In the Magnetewan, which empties into Georgian Bay, the speckled trout reach five pounds in weight, black bass eight pounds, and pickerel fourteen pounds. This river traverses the finest deer country in Canada. Grouse are also numerous, and ducks in their season. In Moon River are monster mascalonge. This stream is the outlet of Lake Muskoka. On the Severn, between the towns of Bracebridge and Gravenhurst, is a fine ruffed grouse district.

To those leaving the States, Toronto is the first objective point, reached from New York by the Erie and Central Railroad, via Niagara Falls and Suspension Bridge, and from the West by Lake Shore and Great Western.

From Toronto the route is via the Northern Railroad to Gravenhurst, or rail to Belle Ewart, thence steamer to Gravenhurst. Thence the route is all by water through Lakes Muskoka, Rosseau, and Joseph—all connecting. After a few miles run the steamer turns into the River Muskoka, which it ascends seven miles to Bracebridge. Bracebridge is the starting point for the South Muskoka and for Trading Lake, sixteen miles distant, both splendid deer and trout districts, with guides, boats and dogs at both places. It is necessary, however, to haul a boat over to the former, some ten miles. Mr. Higgins, of Queens hotel, Bracebridge, will be of service in securing guides and conveyance. At the head of Lake Rosseau is a fine hotel kept by Mr. Pratt. Good deer hunting and trout fishing and every convenience there. At the head of Joseph Lake is a very comfortable hotel kept by Mr. Fraser. Black bass fishing in the lake. There is a road from there to Parry Sound and Georgian Bay. From Rosseau there is an excellent mail road to the Magnetewan, thirty-three miles distant, and extending as many more miles to Lake Nipissing. Telegraph communication between all these points, which are designated here merely as places of rest and departure, accessible to the most feeble, and comfortable in all respects for the wives of sportsmen. There is no end to minor objective points which can be reached by steamboat, skiff, or wagon—Gull Lake, near Gravenhurst, at the beginning of the interior route, with fair fishing for salmon trout, speckled trout, pickerel and bass, and some deer and ducks; Moon River, twenty miles north-west from Gravenhurst, with a beautiful fall, and very good fishing for the fish above mentioned, and mascalonge; Perch Lake, Silver Lake, Pickerel Lake, and Terry's Lake, all near the head of Muskoka Lake, and well stocked with fish; Sharpe's Creek, near Bracebridge, with speckled trout; a chain of lakes, reached by sixteen miles staging from Bracebridge, called Fairy Vernon, Fox, and Peninsula Lakes, with the Lake of Bays, reached by a portage of three-fourths of a mile; and best of all, the waters adjacent to and including the famous Magnetewan, all of which teem with deer, ducks and fish of various kinds. Of these are Aumick Lake, Seeb Lake, White Lake, and Doe Lake, the last little visited but highly spoken of.

The whole country is now so accessible that the sportsman can easily visit the principal hunting and fishing grounds in the space of a single month. At the most frequented places, boats, canoes, dogs, and guides can be procured. A canoe with guide will cost $2 per day. Richard Crooks of Magnetewan will act as guide for fishing and hunting parties on the Magnetewan, and furnish canoes, a tent, and three dogs for $2.50 per day. Provisions and wagons can be obtained at the larger towns, but it is advisable for the sportsman to take his own camp kit and tent. Heavy clothing is requisite at all times of the year, although the mid-summmer days are often very hot. June, September, and October are the best months, the former for fish, the latter for game. The weather is not severe in October, and navigation does not close until the end of the month. Expenses of round trip for a month $100. Joseph Scott, Gravenhurst, will furnish guides, boats and reliable information. A good map of the river and adjacent country may be obtained of Charles Lount, Register, Bracebridge; or of Adams, Stephenson & Co., King St., Toronto.

Niagara County—

Niagara. The commons near the town are excellent grounds for plover shooting. For the fishing of the Niagara River see Niagara, New York. On the Erie and Niagara division of the Canada Southern Railroad. Good hotels.

Northumberland County—

Harwood. In Rice Lake, bass, pickerel, mascalonge. Reached via Grand Trunk Railroad from Toronto to Port Hope or Coburg, or by boat from Rochester to Coburg, thence to Harwood seventeen miles. A. V. Denio's, and other hotels, where Indians, canoes, etc., can be obtained.

The Ottawa District—

One of the best hunting grounds, easily accessible from the cities of Montreal and Ottawa, is to be found in the country watered by the River Nation and its tributaries. This river, which empties into the Ottawa about forty miles below the city of the same name, is long, narrow and deep, flows through a somewhat flat country, and is one of the most important lumbering tributaries of the Ottawa. It has numerous small streams running into it which render the surrounding

country penetrable by boat. The whole region abounds in mineral springs, to many of which the deer resort in numbers on account of the saline character of the waters.

To reach the hunting ground you leave Montreal by the morning train for Lachine, thence steamer (breakfast) to Carillon; thence railroad to Grenville, as the steamer does not go through the canal. From Grenville steamer (dinner) to Brown's Wharf, where, if there are more than two or three in the party, a conveyance must be hired to Plantagenet. There is a mail wagon which can carry two or three persons, but no more. At Plantagenet you must stop all night, and there a conveyance may be obtained to take you to what is called "The Brook," where, if you are fortunate enough to secure the services of Jim Simpson, you may expect sport. There are other hunters besides Simpson. The fare from Montreal to Brown's Wharf is about $5.25, including breakfast and dinner; from the Wharf to Plantagenet, fifty cents. A buggy and driver to The Brook will cost about $2, and you will pay Simpson $2 per day for himself and dogs, for each day you hunt; perhaps a little more, should there be a large party. The fare from Ottawa to Brown's Wharf is about $1.25. Early in the season it is preferable to camp out, but Simpson can generally find accommodation for a few.

Besides deer, this region abounds in bears, foxes, hares, and ruffed grouse. The only way you can hunt the latter is to have a dog that will tree them and bark until you come up. In this way large numbers may be obtained.

Peterborough County—

Burleigh. Deer, ducks, partridge; black bass. The route is via the Midland Railroad to Lakefield, thence steamer. There is a comfortable and neat tavern at Burleigh Falls.

Young's Point. Bass, and mascalonge fishing. Reached via steamer. Six miles from here is the Burleigh Hotel, which is designed expressly for sportsmen, and where splendid salmon trout fishing may be found. The fish weigh from ten to thirty-five pounds. Excellent guides can be readily obtained, canoes can be had for hire, and all camping equipments can be purchased, or perhaps rented, at reasonable prices by merely applying to the landlord of the house where the sportsman may put up.

Pigeon River and Pigeon Lake are good duck shooting grounds; black ducks, pin tails, teal and wood ducks. Take Midland Railway to Omemee, thence via boat down stream to Muskrat Island, a good camping ground, and excellent shooting. Flood's Bog, three miles farther, is good snipe ground. Clansey's Pond is the resort of many ducks. Twin Islands at the head of Pigeon Lake is the best point for shooting.

Peterborough. The Otonabee River is a noble stream for black bass fishing. It is a sluggish stream of some twenty miles in length, and from one hundred to one hundred and twenty yards wide, winding gracefully through forest and farm till it enters Rice Lake.

The fish are game to the last, and range in weight from one and one-half to five pounds. Excellent duck shooting on the lakes in the vicinity. Buckhorn Lake affords excellent mascalonge fishing, with deer shooting in the neighborhood. Reached by stage from Peterborough six miles to Chemong Lake, thence by water. Peterborough is on a branch of the Midland Railway.

Balsam Lake. Big Island is a good deer ground. The pools all about are full of fine fish. At the foot of the rapid between Big and Little Mud-turtle Bays, is a famous place for fish.

Stony Lake, is a body of water about nine miles long by three wide, and dotted over with innumerable islands of all sizes and shapes. Many of these are wooded, others are covered with grass and small shrubs. The black bass fishing in the lake is first-class, especially at the mouths of Jack's and Eel Creeks. Trolling is also good in all parts of the lake, mascalonge and land-locked salmon taking the troll freely. The latter fish afford magnificent sport for the angler (with live minnow for bait) early in May, at Purleigh Falls; they are seldom caught weighing less than seven pounds, and have been taken over thirty pounds in weight. Herring and perch are also caught in the lake. Summer duck shooting begins on the 15th of August, and remains good for four or five weeks, when the fall flight commences. Wild rice and celery grow in great abundance in all of these waters, which are visited by millions of the duck tribe, until the cold weather closes the waters, compelling them to seek a more congenial clime. Deer hunting, or rather, the open season begins about the 1st of September, Stony Lake, Lovesick Lake and Deer Bay, (all contiguous,) being favorite resorts for the deer hunter, as they are all easy of access, and deer are plentiful.

The Mount Julien Hotel, on the very shore of Stony Lake, for the especial comfort of tourists and sportsmen, has accommodation for sixty guests, with every luxury that could reasonably be looked for in the backwoods of Canada. Terms $2 per day, $10.50 per week. Sailboats, row boats, and canoes, guides and dogs are always at hand. Go via Rochester, N. Y., to Charlotte on the New York Central Railroad, thence by steamer to Port Hope, thence Midland Railway to Lakefield where the steamer Chippewa is in waiting to convey you to Mt. Julien. Time from Charlotte, fourteen hours, fare $4. Fare from New York about $20 each way.

Prince Edward County—

Long Point or Point Traverse, on Lake Erie, is owned by an influential club and has been known for years as one of the finest preserves and shooting grounds in the country. Citizens of Canada and the United States are joint members. A great deal of fur, as well as some game and fish is taken there annually, but the duck shooting affords the sport *par excellence*. Reached by steamer from Montreal or Kingston to Pictou, thence seventeen miles drive.

Renfrew County—

Pembroke, on Alumette Lake. Excellent trout fishing with deer shooting in the neighborhood. Take cars from Brockville on Grand Trunk Railway, to Sand's Point, and thence steamer. Several hotels.

Simcoe County—

Lake Simcoe. One of the most famous black bass localities in the world is Lake Simcoe, and its contiguous chain of lakes. It is only twenty-four hours from New York City, via Niagara Falls and Toronto, and thence by the Northern Railway of Canada to Barrie or Belle Ewart, at which places a steamboat connects with the railway. This boat traverses Lake Simcoe thirty miles, and passes by a connecting channel into Lake Coochachung, touching at Orillia, at which place there is also a railway connection with Barrie. In other words, there is an all rail route from New York to Orillia. From Coochachung is ten miles of staging to Muskoka Lake, one of the very finest bass lakes in the world, and there the angler may take steamboat again, and traversing the lake, pass through a canal and lock into Lake Rosseau. This whole region swarms with bass, and is well worth a week's visit. Cost of a ten days' trip about $75. Excellent hotels at Belle Ewart, Barrie and Orillia. Guides and boats can also be obtained at Rama, an Indian village three miles above Orillia.

Victoria County—

Bobcaygeon. This is a good place for any sportsman desiring variety. In May, June, and July, mascalonge can be caught in any quantities. They run from five to twenty pounds, averaging about nine pounds. Black bass are gamy and large. Ducks, partridges and snipe are plenty. Deer abundant, and hounds and starters can be found in the village. Half a mile beyond Bobcaygeon, the river enters Pigeon Lake, and from this place can be reached numerous others, all well supplied with fish. At Bobcaygeon, good hotel board can be had at five dollars per week. The best place is kept by John Simson, whose wife makes it a place of home neatness. This place can be reached via the Midland Railroad to Lindsay, thence by steamboat. There are no boats nor guides. The foot of Pigeon Lake, at Little Bob River, is the place to fish.

Gravenhurst. Ruffed grouse and deer. Go via rail to Orillia, thence by stage, twenty-five miles. Hotels.

Lindsey. Eight miles down the Scazag River, Sturgeon Bay, is a renowned place for black bass, mascalonge and other fish. There is a good summer hotel.

Coboconk. Two miles distant from Coboconk are some excellent black bass fishing pools. Big Turtle Lake has mascalonge fishing; Moore's Lake, salmon and mascalonge; Gull Lake, salmon. In the fall good trolling between the island, and in the vicinity is good deer shooting. Mountain Lake is well stocked with salmon trout, reached from Gull River Bridge. Big Bush Kouk Lake is the receiving basin of three chains of lakes, salmon and game in all the surrounding country, Grass River and lake, Pine and Cranberry Lake, etc. Hall's Lake is the most beautiful of the chain, and is in the centre of a grand game country. Take the Toronto and Nipissing Railway to Coboconk.

Wellington County—

Guelph. Fine bags of plover are made in the vicinity. Reached via the Grand Trunk, or the Great Western Railroad. Hotels excellent.

QUEBEC.

The Province of Quebec, or Canada East, has an area of 193,355 square miles. The population (1,191,576) is mostly confined to that portion of the province lying south of the St. Lawrence River and west of the meridian of Quebec, and known as the Eastern Townships. North of the St. Lawrence, there are but a few settlements, and a small number of hamlets a short distance inland from the river. The inhabitants are principally of French descent, preserve many of the old customs, and speak a *patois*, some knowledge of which the visitor will find of great service. The surface of Quebec south of the St. Lawrence is hilly; north of that river it is rocky and mountainous. There are here, as in Ontario, extensive forests, numerous rivers and lakes. The North-western country is especially remarkable for the extent of its water system, and is little else than a continuous chain of lakes and their connecting streams. The hunting and fishing, the conveniences of travel and the restrictions upon salmon fishing are the same as those already given under Ontario.

Anticosta Island. Reached in summer by regular sailing packet from Gaspe, and by chance vessels from Quebec. A canoe, Indians, and provisions can be obtained at Gaspe. Take shot gun, salmon and trout rods. From Gaspe to West Point, the run is seventy miles. There is a lighthouse here. English Bay is a fishing station a few miles to the northward. Twelve miles further is Ellis Bay. There is fair shooting all along shore, for yellow legs, plover, ducks and sea pigeons. There are cabins at Ellis Bay, and at the head of a neighboring inlet, known as Gamanche Bay, Captain Setter has a very comfortable house. Inland are bogs, barrens, pools and creeks, which are breeding places for geese. Fifteen miles further is Bessie River, with good fishing for salmon and trout. The intermediate ground is broken by wooded spits and grassy points, which enclose innumerable lagoons, into which the tide flows, and these swarm with ducks in great variety. Absalom Gamanche and his wife have a cabin at Bessie River, and will accommodate sportsmen. Four miles up stream is a splendid salmon pool with large fish. The trout fishing is very fine, the fish running from half a pound each to two pounds. Some twenty miles farther is Otter River, supplying good salmon fishing for rods. There are plenty of ducks and geese here. A few miles farther is Jupiter River, the largest river on the island, sixteen miles in length, with many large salmon and fine pools. For trout, a rod will average two hundred per day. Four miles from Jupiter is Southwest Point, a fishing station. A Mr. Pope lives here and entertains most hospitably. There are no animals on Anticosta Island, save bears, martens, otters, and several varieties of fox. For salmon, small flies are requisite, the most killing being one with red head, pale green body, ribbed with gold tinsel, legs light brown, wings of partridge feather, and brick-red tail; another, equally good, with dark claret body, with silver twist, bright scarlet legs, wings of brown mottled turkey feather, with black tip, and forked tail of yellow and red; and, generally speaking, bright gaudy flies with small hook seem to be the favorites.

The cost of a month's trip, in round numbers, would be about $150 for two persons.

Bonaventure County—

Port Daniel is at the mouth of the Nouvelle River, in which is excellent fishing. Reached via steamer from Montreal, Quebec or Dalhousie.

New Carlisle. Fine salmon fishing in the Bonaventure River. Reached via steamer from Quebec. The river is without bad rapids or obstructions, the water cold and clear.

Charlevoix County—

Mal Baie, ninety miles from Quebec on the Lower St. Lawrence River. A good moose country. Surface mountainous. Lodgings in farmhouse, or camp. Reached by shallop.

Murray Bay. A fashionable watering place on the St. Lawrence River, between Montreal and Quebec, reached by rail or steamer. Fair trout fishing in the vicinity. Post Office address is *Pointe a Pic.*

Chateaguay County—

Ormstown and Durham. Deer abound in the Flat Rock woods between Ormstown and Franklin. Reached via Caughnawaga, on the Lachine division of the Grand Trunk Railroad.

St. Urbain. The caribou still resort in large droves to feed on the white moss which clothes most luxuriantly the extensive moors in rear of Bay St. Paul, called *Les Jardins*, and bears are frequently met, attracted by a small red berry, which grows on low shrubs much like the low-bush cranberry. Whole moors are studded with this fruit, called by the Indians *Des Grains.* From St. Urbain the trip is made on snow shoes. The guides are harnessed to the wagons laden with provisions, ammunition and camp utensils, and away you go for twenty or thirty miles on foot, over the most mountainous, but picturesque portion of the Laurentine Chain, amid some of the wildest and most lovely scenery on the continent. Take boat from Quebec to St. Urbain.

Chicontimi County—

Chicontimi. Land-locked salmon are caught in the Saguenay. Reached via steamer from Quebec. Provide camping equipments at Chicontimi, and after crossing the river, drive eighteen miles, to the house of Thomas Savard, who will act as guide to the camping ground which is at the foot of the Grand Discharge.

Compton County—

The Chaudiere. The River Chaudiere is the outlet of Lake Megantic, and empties into the St. Lawrence just above Quebec, over a beautiful fall. The first rapids of the Chaudiere near the outlet of Megantic Lake, are three miles from the landing at John Boston's, where there is a post office. It is a romantic canoe voyage from the falls up to the lake, with abundant trout fishing in the numerous tributaries.

Lake St. Francis. Reached by wagon from Stornoway, twelve miles, or by boat from Sherbrooke. Fine mascalonge fishing, and trout fishing in adjacent waters. (See Lake Megantic.)

The Eastern Townships—

The section of the Province of Quebec known as the Eastern Townships lies directly north of the States of Vermont and New Hampshire and extends thence northerly and easterly to the St. Lawrence and the Province of New Brunswick and the State of Maine. The country is very hilly, almost mountainous, and abounds in lakes and streams which, in their turn, abound, in general, in fish; principally trout, lake trout, bass, pike and pickerel. In the larger streams, and the lakes, they will be found weighing from one to five pounds. The best flies for the *Salmo fontinalis* in these waters are the Canada fly and any medium-sized brown-winged fly. The lunge never rise to the fly, but are taken by trolling and by down fishing. The best bait is the live minnow, and the best season for trolling is from May 25th to July 1st. With a moderate amount of skill you will be sure of fair sport, and be pleased with the country. To enjoy this section thoroughly a full camping outfit is necessary, and a good bit of advice to those about making camp is, to dig a ditch three inches deep around the tent, so formed that the water from a rainfall may run off at one or two corners. The Passumpsic Railroad is given as the most direct route. Parties travelling after July 1st can avail themselves of the excursion rates to Newport; return tickets being issued for $13. A party could thus go to Newport, thence to Sherbrooke, and return by way of Magog; thus enjoying the sail up the lake and arriving at Newport in season for the evening train. The tourist by taking the evening train from Boston, will arrive, or should arrive in Sherbrooke next day in ample season to get his tent pitched the same night. Even if he buys his supplies in Sherbrooke, there will be ample time to camp the same night. Wherever, in this section, there is mail communication by stage, transportation may be had at an average rate of five or six cents a mile; so that parties desiring to visit any other part of the country than those named may make their estimates accordingly.

Brompton Lakes. The lakes of the Brompton Chain are twelve or fourteen in number, situated in the midst of a perfect wilderness of hills; indeed, so broken is the contour of the ground, they can only be reached by one road, and that one runs at an average angle of 45° to the horizon. The larger lakes contain the finest "lunge" or lake trout, and some of the smaller ones abound with brook trout and bass. At the foot of the largest lake there is a mill, but this is about the only building in a circuit of miles, and the sportsman may easily imagine himself in a perfect wilderness.

At Brompton Lake proper, seven miles long by three wide, the Waterloo Club has a club-house. Boats and a permit to occupy the club house can be obtained at the village of Waterloo. The club house is situated on a small island near the middle of the lake. At the west side of the lake a small creek comes in, which is the outlet of Mud Lake, and another nameless lake. Mud Lake is about a mile long, and contains both lunge and speckled trout. Two miles east from the large lake is Little Brompton Lake, which is nearly two miles long. Two and a half miles east from the south end of the large lake is a body of water called Key Pond. This pond is somewhat larger than Little Brompton. Both of these lakes contain lunge. Three miles south from the "Old Mill" is Trout Lake, which is about two miles long. Speckled trout have been caught there that tipped up the beam at the six pound notch. This lake is only six miles by a good road from Magog. The "Old Mill" is the name of a landing place on the inlet of Brompton Lake, where an old mill once stood. There is none there now. The water at this spot tumbles over the old dam down the rocks into a dark deep pool, the abode of many large speckled trout. They will seldom rise to the fly, but are taken with a live minnow or a small trolling spoon. You launch your boat here and row down the sluggish stream three miles to the lake, which is about seven miles in length by three in breadth. You find here the speckled trout, the silver lunge, which vary in weight from three to twenty five pounds, the black lunge, from two to ten pounds, and a short, thick lunge, which hardly ever exceeds two pounds in weight. The latter fish are only caught by down fishing in very deep water.

To reach the Brompton Lakes, take the Grand Trunk Railway to Sherbrooke, at the junction of the Magog and Francis Rivers. This is on the Massiwippi branch of the Passumpsic Railroad, and also on the Kennebec and Megantic roads. The Magog House is the best hotel in Sherbrooke, where you will find good accommodations, at $1 to $1.25 per day. The lakes can also be reached from Magog, if preferable. The distance from the hotel to Brompton Lake is fourteen miles over a passable road.

Waterloo. Waterloo, or Magog, is situated near a small lake bearing the same name, and is on the Sheffard and Chamby Railroad, which runs from Montreal. The train leaves Montreal at 2.45 P. M., and arrives in Waterloo at seven o'clock that evening. At the station you will find a free "bus" for the Brooks Hotel, where you will get good accommodations at $1.25 per day. Waterloo boasts a "Piscatorial Club," whose members, Messrs. George Allen, Walt Taylor, Nutting, Skinner, and others, are a set of genial gentlemen, ever ready to give any information and assistance that a stranger sportsman visiting there may require. For pickerel, fish in the lake near the hotel, or drive over to Broome Lake, a fine body of water seven miles from Waterloo. This lake is famous for its black bass fishing, and for an abundance of fish called "shad waters." At the south end of the lake, near the village of Knowlton, large quantities of pike are caught. To catch speckled trout, get a rig from "Herbert's," and take Walt Taylor, or some other member of the club with you, and take a tour among the streams and lakes east toward Magog. Put your rod together first some four miles out from the village, and try the railroad pool; fish there and in the brook through the Beaver meadow carefully, and you will be able to count a goodly number of fine brook trout. Some four miles farther you come to Grass Pond, which, however, is full of pickerel; but a short distance from the pond, in its outlet, the water tumbles over a little fall into a deep pool, where large trout are sometimes caught. Four miles farther, by the same road, brings you to a mill-pond containing large trout. A farther drive of three miles brings you to Mrs. Peasley's farmhouse, where you put up your team, and, taking young Peasley for guide, tramp a mile through the woods to Lake Nick, a pretty sheet of water, which measures about a mile in length, to half that distance in breadth. The "moss-backed" speckled trout are taken here, weighing from one half to four pounds. They are caught over a weedy bottom, in four or five feet of water. Some two hundred yards north of this lake is Mud Pond, which is about one-quarter of a mile in diameter, and contains small trout. Five or six miles south

from Mrs. Peasley's, and about the same distance from Knowlton village, is Coon's Pond, a beautiful little body of water near the top of Bolton Mountain, and contains a rare variety of the *Salmo fontinalis*, known there as the "forked tailed speckled trout." They are a slim formed, silver-colored trout, with the usual red spots on their sides, and will average half a pound each. They take the fly well, and are a remarkably gamy little fish, and give as much play as ordinary trout of three times their size.

Gaspe County—

The York River, a fine salmon and trout stream, is reached via New Richmond. The Little Cascapedia River is an excellent stream for salmon and trout fishing, with moose in the vicinity. Reached via Inter-colonial Railroad to Dalhousie, and thence by sail-boat across the bay, or via steamer from New Carlisle. Hotel accommodations. Take guides and canoes, and camping equipments, and go up the river thirty miles to the region of the Chick Chick mountains. In the Grand River are salmon and grilse.

The Magdalen Islands—

The Magdalen Group of islands are situated fifty miles from Prince Edward Island, at the entrance of the Gulf of St. Lawrence. These islands are thirteen in number, and extend in a north-easterly range of fifty miles. Summer excursionists visit the islands for the rare sport of white sea trout fishing, great numbers of this fish being found in the vicinity. The route is via steamer from Pictou, fare $8. The inhabitants live in very primitive style, and the accommodations are humble, but the visitor will meet with hospitality wherever he may go, and if content to forego many modern conveniences, will be sure of an enjoyable trip. Amherst, Grindstone and Entry, are the principal islands of the group. The Bird Isles are famous brooding grounds of gannets, puffins, guillemots, kittewakes and razor-billed ducks.

The Magog District—

The "Magog" District lies directly north of the States of Vermont and New Hampshire, and west of Somerset County in Maine. It is a primitive wilderness in many parts. Its principal rivers are the Yamaska, St. Francis, Nicolet, Becancour and Chaudiere, on the latter of which are the picturesque falls of the same name. The largest lakes are Memphremagog, Massawippi, Aylmer, St. Francis and Megantic; but throughout the region are found numberless small lakes, and from the hillsides, countless streams gush down to swell the volume of the larger rivers. The scenery is romantic and beautiful in the extreme, and the mountain air peculiarly bracing.

The region is accessible by way of the Grand Trunk Railroad from Portland, Sherbrooke being the most convenient point of departure on this line, by way of the Connecticut and Passumpsic River Railroad, from Boston, either disembarking at Newport or going on to Waterloo, and by Hudson River and Lake Champlain to St. John's, and thence to Waterloo. Steamer Lady of the Lake conveys the tourist from Newport to Magog; which latter is a good centre of operations. There is a fair hotel at Sherbrooke, the Magog House; rate $1.50 per day. At Magog there is also a fair hotel whose price is about $1 per day, and the same is charged at Waterloo for fair accommodation. A horse and buggy may be hired for about $1.50 per day. There are many good streams within a radius of sixteen miles from Waterloo, though the fish are apt to be small. At Coon's Pond, twelve miles, there is splendid trouting, the fish averaging about half a pound. At Lake Oxford, twelve miles, they are taken weighing over three pounds; at Brome Lake, six miles, there is excellent bass fishing, and some heavy fish are taken, while in the lake at the village you may troll for pike with good success. Mr. E. B. Hodge, or any member of the "Fishing Club," will afford all the information to sportsmen that lies in their power. From Magog, it is four miles to Lake Oxford. There are several small lakes and streams in the vicinity affording good sport. In Lake Memphremagog are lake trout, or "lunge" as they are called. From Sherbrooke, a drive of about fourteen miles takes you to the Brompton series of lakes where are to be found trout and bass, but as boats are difficult to procure on these lakes, the tourist had better make previous arrangements. Ten miles brings you to Lake Massawippi where there are lake trout, and this lake can be reached by a drive of five miles from Magog. There are also small streams within a few miles where good trout fishing may be had, and the proprietors of the hotels here, as elsewhere, will afford all possible information.

There are numerous small villages near which excellent fishing may be had and though many of them have no hotels, yet the inhabitants are hospitable, and kindly in the extreme.

The counties of Wolfe and Megantic are wild and unsettled, as also are parts of the counties of Compton, Richmond and Shefford, and even parts of the town of Sherbrooke, and the tourist would do well to arm himself with a rifle as he may have an opportunity to meet bruin in his native haunts. Of course, only in the wilder parts of the above counties is this possible, but there are numerous smaller animals; and eagles are quite common. The requisite supplies can be procured cheaply in Canada.

Brompton Lake, and Lake Megantic, Aylmer and others as well as many tributaries of the Chaudiere, afford splendid sport. The Waterloo Fishing Club have a shanty on an island in Brompton Lake, and are exceedingly courteous to all sportsmen, and many small lakes near their village would well repay a week spent on their shores.

There are also salmon in Salmon River but they will not take a fly.

The most favorable season for trout fishing is during May and June, and the latter part of September. During the hotter months they are only to be found in the springholes and deep shady pools; but there are several lakes in which they can be caught on any cloudy summer day.

The Megantic District—

The section of the Province of Quebec known as the Megantic country embraces the eastern portions of Compton and Wolfe counties and the southern part of the county of Beauce, its southern and eastern boundaries being the States of New Hampshire and Maine. The surface of the country is of a rolling character, dotted with occasional mountains, the Megantic being the largest in the district, and one of the finest mountains in the province. The district is well watered with numerous lakes and streams, which form the sources of two rivers of considerable size—the St. Francis and the Chaudiere. The former river affords but little sport for the angler as it only contains a few mascalonge, pickerel, and other coarse fish, unless we add salmon, which run up the river to some of its tributaries for the purpose of spawning, but they give no sport to the fly-fisher, as they will not rise and take the fly so far from the sea. The upper waters of the Chaudiere are well stocked with the *Salmo fontinalis*, and some of them of large size. To reach this district, make your first stopping place at Sherbrooke, where you will find good accommodations at the Magog House. Its genial landlord, Brother Buck, knows how to keep a hotel. You can here procure your supplies, excepting tent and fishing tackle, which, of course, you have brought with you, together with your breech loading rifle and a large sized revolver and compass. At this point either hire a team for the trip with wagon suitable for hauling a boat, or go by stage east to the village of Robinson, or "Burg," as it is more familiarly called, twenty-six miles distant from Sherbrooke, and the centre of a fine fishing region. Stop at Conghs Hotel. Good trout fishing at hand in the mill ponds, and also at the new mill, on a brook some five miles out from the village toward Scotston. You can procure boats here, to haul into the wilderness, if you are going farther.

Scotston. This is a new village at Victoria Falls, on the Salmon River, a tributary of the St. Francis River, twelve miles drive from Robinson, or the Burg, by wagon or Pinkham's Express. You can procure a guide here for $1.25 per day. Archie MacDonald is a trustworthy guide, or John Breaden, of Burg; Archie Annas, a college educated Indian, is also a good guide, his address is Dilton, Quebec. Pinkham usually has boats to hire, and will furnish a team to haul your boat to the bay or over to the lake at a mere nominal sum. While you remain at Scotston occupy your tent by all means, and sleep in peace. There are some large trout in the rapids below the dam, and many smaller ones of half a pound weight in the pond above. Should your visit there be during the month of August you would undoubtedly witness some of the various methods used by the Scotch settlers to destroy the salmon that are stopped here by the dam on their way to their spawning grounds in the still waters a few miles above the falls.

Lake Megantic. There are two routes to Lake Megantic—one by the new Government road from Scotston to Myers, a distance of eighteen or twenty miles, the other, the old route via Gould and Starnoway, to the lake near its foot, at John Boston's, Lake Megantic Post Office, distance about thirty-eight miles from Scotston. This route passes near two lakes—Moffat's and McGill's—which contain no speckled trout, but a fish called "white fish." Gould is a small village in the township of Linwick. In the northern part of the town there is a trout lake, which

it will pay to visit. Seven miles from Gould, toward Starnoway, is Mountain Brook number three. Some three miles down the brook, is a bog or stretch of dead water, of considerable size. The stream from the road down to the bog, has lately been cleared out by lumbermen to run down thick logs, so there would be but little trouble in floating a boat down to the dead water. Accommodations for teams may be found at one of the farmhouses before entering the wood. Another small river passed before reaching Starnoway has a few trout. At Starnoway there is but one hotel - Leonard's, which is fourteen miles from the lake. Four miles from Starnoway, toward the lake, is a small creek with an old mill on it. Here will be found good trouting. Lake Megantic is estimated to be about fourteen miles long, and from two to three miles broad. It contains both lake and speckled trout, black bass, and many other varieties of fish. Very large trout are caught at the first rapids of the Chaudiere River, at the outlet of the lake. Good grouse shooting, and deer to be had three miles from the landing, at John Boston's. From the Chaudiere go up the lake to Myers' and try a small lake back of the church; then go up to the head of the Megantic, up Spider River to Spider Lake, which is seven miles long; then fish Arnold River, and tramp three miles over to Trout Pond; also visit Egg Pond, east of the Megantic. The Megantic and suburbs will keep you quite busy for a couple of weeks. When you return to Starnoway, you can visit another small trout lake, some six miles distant; then go to Lampton, at Lake St. Francis, twelve miles from Starnoway, where you will have trolling for mascalonge, and in a small river that runs into the west side of the lake, you will get trout. You can now return to Sherbrooke by water, passing through Lake Aylmer, or return to Starnoway, and drive to Lake Aylmer, twelve miles; there hire a boy to take your team to Briere's, at Lake Weedon, eight miles by road and four by water, while you go down with your boat. In the bend of the river, near a mud lake and among the rocks, you can get some fine black bass and hog or pike perch. From Briere's you have a drive of nineteen miles to Lathrop's Hotel, at Dudswell Corners. There is some good brook fishing near Lathrop's, and you should visit a small lake in the eastern part of the township of Stoke, some eight miles from the hotel. This lake is full of fine trout. For the largest fish, take off your fly and use live minnows; try the deep water near the outlet, and see how quick you can fill your basket. From the Corners to Sherbrooke is twenty-one miles, and each of the small streams that you pass between those places have trout in them. Theophile Beauchamp, whose post office address is at St. Hyppolite de Richemy P. O., Province of Quebec, is a good general guide for this district.

The Bog. This is the centre of a fine moose and trout country; lying along the base of the Megantic Mountain, five miles from Scotston. It is a long stretch of dead water on Otter Brook -a stream that empties into the Salmon some three miles above the falls. If you make but an hour's stay at Pinkham's, you could reach the bog for dinner, which you will take a mile above the landing, at the Old Dead Pine, where you will find a little rivulet of good water, which comes down sparkling and cold from the mountains. Your camp should be three miles up the stream, at the mouth of Mountain Brook. There are plenty of trout in the bog, and some of them will tip the beam at full three pounds. You will find them the most beautiful at the head of the deep pools, where the lily pads nearly cover the water; at the mouth of the brook, near camp, you may expect some big fellows. The sources of both streams are a couple of small lakes a few miles above your camp, and should you visit them, you will undoubtedly have fine sport, and find the trout there numerous and unsophisticated. When you tire of that camp, return to the landing and send the guide for your team, to haul your boat and traps via Scotston to the river, while you fish down the brook to its mouth, a distance of three miles. After you reach the river go up to the left shore for a short distance, and you will find a spruce bark camp, where you will await your guide; then proceed up the river about three miles and camp at Cold Spring, Archie's (the Indian), old camp, at the foot of the lower still water. The still waters of the salmon are, together, nine miles in length, with a portage of about half a mile between them. The lower still waters afford the most trout, and are the favorite haunts of deer and moose. A few yards below and opposite the camp, is the mouth of Mountain Brook number two. This stream takes its rise from springs in a large basin on the west side of the mountain; back a mile from the river are a series of falls, where early in the season large trout may be caught. Above the upper still water you come to the settlement of Dilton and Pope's gold mines. On the Dilton branch and the headwaters of the Salmon you will find good sport. After you have fished these waters to your satisfaction, and desire a change, return to Scotston and start to Lake Megantic.

Montmagny County—

Montmagny. Good snipe and duck shooting on the small islands in the St. Lawrence, near this point. Reached via the Grand Trunk Railway.

Montmorency County—

The Isle of Orleans. The Argentenay meadows on the north shore, at the extremity of the island, are fine hunting grounds for wild fowl and other game. The island is connected with Quebec by steam ferries.

Chateau Richer. On the marshes excellent duck, snipe and partridge shooting, with trouting in the upland streams. This locality, fifteen miles from Quebec, and easily accessible by carriage road or steamboat, is a favorite resort for the sportsmen of that city. Fair hotel accommodations will be found.

Montmorency River. Excellent fishing for trout, thirty miles above the falls. At the falls, eight miles from Quebec, is good trout fishing, but the property is protected by the owner and proprietor.

Ottawa County—

Thurso. Duck and deer hunting on the Ottawa near this place. Reached via the Grand Trunk Railroad to Lachine, thence via steamer. Provide for camping.

Pontiac County—

Victoria Lake and vicinity is a good locality for caribou, moose, grouse, hares, and trout.

Pont Neuf County—

Jacques Cartier River. Trout in upper part, above the falls; salmon in lower part. For trout take wagon twenty-five miles from Quebec. John Bayard will furnish canoe and man. Must camp out. For salmon, take steamer up the St. Lawrence to the mouth of the Jacques Cartier, and there obtain canoes. Country hilly.

The Quebec Country—

The region designated as the Quebec country is included within a circuit of one hundred miles, lying north of the city of that name. We say a hundred miles, because the sportsman, however much of an ambitious or exploring turn of mind, would scarcely undertake the journey through to Hudson Bay or Labrador, though these are its boundaries proper. Within the distance there is still a vast unexplored mountainous tract, among which are numberless lakes, rivers and streams affording, each and all, such fishing and pleasant enjoyment in the wild camp life as are not to be had elsewhere short of the Rocky Mountains.

The Jacques Cartier is the first river of any importance which you strike after leaving Quebec. It is twenty miles distant from that city and is the boundary of the settlements to the north. The river is extremely picturesque in its meanderings among the numerous islands with which it is dotted and affords some excellent trout fishing. Salmon fishing is to be had lower down. It is navigable for canoes for fifty or sixty miles from its mouth, with but few portages.

Two days' tramp from the Jacques Cartier is the St. Ann's, a shallow rapid river flowing between high precipitous mountains expanding at intervals into large deep pools, in which lurk some fine fish. One of the largest of these pools is called the *Peche a Malcolm.* Between the two rivers are many large lakes, deep among the mountains. *Tontari*, *Grande Lac*, and the lakes of the river *Aux Pins*, afford the finest fishing. Caribou and moose can be successfully pursued here in fall and winter. The lakes abound in ducks which breed on the islands.

Outfits must be of the lightest, for everything has to be carried on the back of the guide over high mountains. Leave this matter to the guide and let him procure under your supervision whatever is needful and nothing more. You must expect to carry your own little traps. No tent is requisite, as a bark camp can be soon constructed with little labor.

For guides, we can refer to George Neil, Robert Douglas and young Pat Cassin, all of Valcartier. Indian guides can be obtained at the Indian village of Lorette, on the road to Valcartier. Charlo Gros-Louis, Francis and Etienne are good reliable men. There are others doubtless equally as good. All speak enough English to get along with.

Charles Wolff of Valcartier will accord all sportsmen a cordial welcome and put them on the road to good sport. The cost of a trip of two or three weeks' duration, including fare to and return, will not exceed $60.

Lakes around Quebec City. Calvaire, St. Augustine, St. Joseph, Lac a la Trinte, Philippi, Jaune, Snow Lake, Lac Blanc, Lac Sud-Ouest, Thomas, Lac Claire, Lac McKenzie, Lac Vincent, Lake Saganite, Lake Burns, Lake Bonnet, Beauport, St. Charles. Some of these lakes contain speckled trout; others pickerel. Good accommodations for sportsmen at most of these. Much fished. Country rolling. Reached by eight to fourteen miles drive from the city.

Lake Garnier, forty-five miles from Quebec by wagon. There is a tolerable inn at the toll-gate, three miles from the lake, where one must make headquarters if he does not wish to camp out. Boats and guides can be had. Speckled trout very large. All needed supplies must be taken with you. Country hilly, with picturesque scenery.

Quebec County—

Tontari Lakes. Valcartier, some fifteen miles from Quebec, is the farthest settlement north of the St. Lawrence. Here commence those vast forests and mountain ranges that extend to the Hudson's Bay. Throughout its entire length this region is intersected by numberless lakes and rapid shallow rivers. In this primeval wilderness moose and caribou abound, while every lake and stream is filled with trout. The smaller fur-bearing animals are also numerous.

The few remaining Indians in autumn strike far into the interior, to return in the spring laden with the proceeds of their rifles and traps. Occasional parties from Quebec, under the guidance of some Indian, make short excursions to the lakes, and return with glowing accounts of the abundance of game and the wild and beautiful scenery everywhere met with. These trips are usually made in summer or early autumn. At Valcartier Mr. Charles Wolff will welcome all sportsmen and secure all guides for the Tontari Lakes. They are one and a half day's journey from this settlement. Lake Tontari, four miles in length, affords very fine fly fishing. The fish here average a pound in weight.

Belle, *Trinity* and *Peche a Malcolm*, reached from Valcartier, are good fishing localities.

Montmorency Falls. The Montmorency River is a fine stream for trout, especially at the junction of the Snow River. Distant six miles from Quebec.

Valcartier. In the vicinity are found partridges, pigeons, ducks, hares. Seventeen miles from Quebec.

Richelieu County—

Sorel is reached by steamer from Montreal or Quebec. There is good snipe, plover and wild goose shooting on Crane Island, in the spring and autumn.

Rimouski County—

St. Maurice District. The innumerable lakes of the Laurentian hills abound in trout. The Lake A Veau Claire is especially famed for its beauty and the size and abundance of its fish. This lake draws tribute from fifteen others all full of fish, and its outlet mingles, three miles from the lake, with the Riviere du Loupenhaut, a river stretching back from Lake St. Peter into the Lauvertides, one hundred miles or more. The lakes tributary to this stream are numbered by hundreds, of all sizes, and with few exceptions those on the east side of the river swarm with the brook trout.

This river, with its tributaries, is but a fraction of the St. Maurice Territory, as yet almost a *terra incognita* to the angler. The Matawan, Shawenegan, Machichi, Maskinonge and L'Assomption are all full of fish.

Rimouski. Good salmon angling in the Rimouski and Metis Rivers. Reached via the Inter-colonial Railway or via boat from Quebec.

The Saguenay Country—

The tributaries of the Saguenay River nearly all contain salmon. Some are leased. The Marguerite is the best river; it is under lease. Sea trout are caught from the middle of June until the 1st of August in the lower part of the river. The early run is found at the bar opposite the mouth of the river. Later they are found as high as fifteen miles up. Excellent hotel accommodation at Tadousac.

Chicontimi Falls, a series of rough rapids at the outlet of Lake St. John, some eighty miles up the river, and twenty miles above the village of Chicontimi, where are comfortable taverns.

The Falls comprise two divisions, separated by an island, and are known as the Petite Discharge and Grand Discharge. This place is celebrated for its landlocked salmon, (locally called winninnish, or ouininish). About the middle of

June, take steamer from Quebec or Riviere du Loup, on the Inter-colonial Railway, on Saturdays or Wednesdays, to Tadousac and Chicontimi. Thence find steam conveyance on a tug to the Upper Saguenay. Go to Savard, the Frenchman, and engage a canoe and two men to take you to the camping ground at the "Grand Discharge," five miles above. You can troll for big pike while going up. Sleep at the foot of the Rapid de Gervais. Next day cross the rapid and fish for winninnish, about a mile up the river at the top of the rapid. The men will show you an island, near which lies a rock. Fish off that rock. Next day go up the main branch of the river to another place, and return so as to be at Chicontimi by Wednesday or Saturday afternoon. Take medium sized flies—yellow; black wings and yellow body; grey; red body and grey hackle; brown wings and black body; these are the best colors, the yellow and black prevailing.

Saguenay County—

The Godbout River is one of the best salmon streams in the province, and a favorite resort for anglers.

The *Moisie River* which empties into the St. Lawrence Gulf, eighteen miles east of the Bay of Seven Islands, is one of the best salmon trout streams in the world. Take steamer from Tadousac, to Moisie at the mouth of the river.

Soulanges County—

Coteau du Lac. Fine bass fishing in the St. Lawrence, and good duck shooting at this point. Reached via the Grand Trunk Railway, thirty-six miles from Montreal.

La Prairie. A good place for bass fishing in the St. Lawrence. Seven miles from Montreal, on the opposite side of the river.

St. John's County—

St. John's. There is very good fishing in the Richelieu, particularly at St. John's, Chambly, Beloeil, and near Sorel. A beautiful silvery fish, called by the French *La quoche*, is taken in large numbers at Beloeil, in July and August. The best bait is the grasshopper. They are sometimes taken with the spoon, and will also, it is said, take a bright red trout fly. Black bass, dore, pike, perch, sunfish, rock bass, a small kind of sturgeon, pickerel and whitefish are abundant. St. John's is an easy distance from Montreal; there is an excellent English hotel there, and those who have pleasant associations with foreign climes, will enjoy a stay in a thoroughly French family hotel, clean and airy, with good cooking and moderate charges. The pleasantest spot to fish on the Richelieu, however, is at Chambly, at the foot of the rapids. The "Basin" affords fine boating, and there is a good hotel there, kept by a Frenchman.

Sherbrooke County—

Oxford Lake. A very beautiful body of water lying along the southwestern base of Mount Oxford, fifteen miles east from Waterloo, and six miles west of Magog; contains silver lunge, from two to five pounds in weight. In Hopp's Pond, one mile south of the lake, are very large speckled trout. One mile and a half south is Brown's, or Mulligan's Pond, an indifferent water for trout. South from this is a chain of small lakes but little visited, as most of them contain pickerel.

Black River. Ten miles north of Waterloo, a pleasant drive all the way, has large speckled trout. On the way out, several good trout streams are passed.

Wolfe County—

Lake St. Francis, in the midst of lofty wooded mountains, is an excellent fishing ground. Reached via Levis and Kennebec Railroad to St. Francis, thence stage thirty-six miles.

Stanstead County—

Magog. The village of Magog is pleasantly situated on the outlet of Lake Memphremagog, and is twenty-one miles east from Waterloo, sixteen from Sherbrooke, eleven miles from Ayers Flat, a small station on the Passumpsic Railroad, and thirty miles north of Newport, Vt. It is connected with the first named places by a daily line of stages, and with Newport during the summer season by the little steamboat Lady of the Lake, which makes daily trips. Asa Hubbard keeps a good hotel, called the Park House, between which and Mt. Orford, six miles away, are several good trout streams, with Orford Lake and Hopp's Pond

near by, and also northeast from the mountain, towards Trout Lake, near Brompton, are other good trout waters. Board $1.25 per day, with no extra charge for boats.

Massiwippi Lake. This lake is twelve miles long, and contains a great variety of fish which net and spear have sadly diminished. Reached from Ayers Flat on the Passumpsic Railroad, by a short drive, or from Sherbrooke on the Grand Trunk Railroad. Six miles southeast from the hotel is Lovering's Pond, which was once famous for its "big trout," but is now seldom visited by the angler. In the lake near the hotel the silver, black, and racer lunge are taken in large quantities. Some of the silver lunge grow to a very large size. Three pound speckled trout are often caught in the rapids, in the outlet near the hotel, during the months of May and June.

Terrebonne County—

New Glasgow. Snipe, woodcock, ruffed grouse, ptarmigan, and squirrel shooting in the vicinity of Kilkenny Lake. Route from Montreal, via stage to New Glasgow, thence hired conveyance to the lake. At the lake, W. Hamilton, or "Rapidee Willie," as he is called, or the Ward Brothers, will act as guides.

Kilkenny Lake. The woods teem with ruffed grouse and neither bears nor deer are very scarce. The roads are extremely hilly and rough in the vicinity of the lake, and vehicles are subject to much violent bumping. The principal fish are the trout, lake trout and bass. There are also taken in small quantity in the winter, white herrings. This latter fish is said to be exceedingly delicate and fine in flavor, and seems to be the whitefish of the great lakes. During the summer an occasional "lunge" may be taken by bottom fishing, but the angler had much better devote himself to the black bass, which are very numerous. There are two kinds of trout in this lake, the lake trout or "black trout," as it is called, growing sometimes to twenty pounds weight and much more slender and graceful than its Lake Superior brother, and the brook trout which seldom weighs over four pounds. In the seasons spoken of, the latter fish will take almost any bait, and have been caught with a spoon, trolling. Among flies their favorite seems to be those with yellowish bodies and mottled wings. The fishing is mostly from boat or raft, the only place from whence a fly can be successfully thrown being at the inlet of the lake. When fishing with bait or minnow, however, many rocks near shore afford a good foothold. In Red Trout Lake, two and a half miles from Kilkenny, there are no fish except the brook trout, and any one going there at the proper season will find them in flavor and gaminess superior to the Kilkenny fish.

Lake Masson, several miles from Lake Kilkenny, and several small lakes close by Kilkenny, though difficult of access, afford splendid sport.

The visitor to these lakes must camp out, or else run the chances of accommodation at some log cabin; in either case all supplies must be brought from Montreal. Access is by stage once a day from Montreal to New Glasgow; fare, $1. At New Glasgow a team may be hired to the lake, about nine miles. At the lake William Hamilton called "Rapidee Willie," to distinguish him from a second William Hamilton, will find a boat, or render any other service that he possibly can. The Ward brothers also live near the lake and are very obliging. Mr. John Haile, who lives between New Glasgow and the lake, is a thorough sportsman; and any information or assistance in his power he will cheerfully give.

NEW BRUNSWICK.

New Brunswick has an area of 27,700 square miles. The surface is undulating and mountainous, alternating with broad plains and deep valleys. The greater part of the country is covered with dense forests, through which flow many excellent salmon and trout streams. The Province is full of interest for the tourist, the sportsman and the angler. The dense woods are filled with noble game, the streams and lakes abound in fish; communication is easy, and guides, canoes, etc., are everywhere to be procured for penetrating the wilderness.

Gloucester County—

Bathurst, on the Bay of Chaleurs, at the mouth of the River Nepisiguit, is a good initial point where guides and outfits may be secured for the wilderness. Splendid salmon fishing is found in the vicinity, and in the woods game is abundant.

The Tabusintac River is an excellent stream for salmon trout, bass, and sea-trout. In October immense flocks of ducks and geese frequent the neighboring lagoons. Go via stage from Chatham or Bathurst to Tabusintac, where there is a small inn. By going up to the headwaters of the river a fine moose region is reached.

The Nepisiguit River. Fine salmon fishing, some portions free, some leased, and others at a small charge per rod. Salmon run up twenty miles to the Great Falls. There is excellent trout fishing above the falls. Take the Inter-colonial Railway from St. John, or Quebec, or North Shore steamer from Shediac, or Gulf Port steamer from Pictou or Quebec. Good hotels at Bathurst, near the mouth of the river, guides, canoes, etc. Sea-trout in season.

North-west and South-west Miramichi Rivers. Privileges at a small charge per rod. Reached by rail or steamer as above to Chatham and Newcastle, where outfit and guides can be had. Salmon large and fine, with trout in abundance, and sea-trout.

Charlotte County—

St. George. Four miles distant is Lake Utopia, situated among forest covered hills. Its waters are full of silver-grey trout, and its tributaries contain many brook trout and smelt. Among the hills along the valley of the Magaguadavic River, Virginia deer are abundant. Bears are found in the vicinity and great numbers of wild fowl. Reached by steamboat from St. John.

Mace's Bay. Plover, ducks, etc. Reached via Inter-colonial or European and North American Railroad, twenty-one miles from St. John. Sportsmen will find excellent accommodations, good boats, reliable guides, reasonable charges, etc., at Mr. Albert Craft's.

Northumberland and York Counties—

The Miramichi District. This includes all the wilderness in and about the great south-west branch of the Miramichi River and its tributaries, together with all that territory in and about all the little Miramichis. The south-west Miramichi lies about fifty-five miles north of Fredericton, the seat of government. This river and its branches traverse the very heart wilderness of the Province. It is reached by taking the European and North American Railroad at Boston, to Fredericton Junction. Here change cars for Fredericton on the St. John River, where supplies must be obtained for the wilderness, since there is no place beyond this point where provisions can be bought.

Guides and dug outs can be secured at Boiestown, Miramichi River, (south-west branch); or by addressing the Palmer or Stickney Brothers at that village. John Stickney has no superior as a guide in angling and hunting in this region. One of the Palmer brothers can call moose with much Indian art and success. There is a stage running every day from Fredericton to Boieston, which will convey you and your supplies to the Miramichi River. When up river to "Burnt Hill," the *ne plus ultra* of salmon pools, you can strike off from either side a few miles, and find moose and caribou, bear and beaver and small game, or ascend the river twenty miles farther and see many of these animals, together with other fur-bearing quadrupeds, without leaving the steamer. In these counties moose are to be found all through the regions about the sources of the Miramichi, Tobique, Nepisiguit and Restigouche Rivers.

Indiantown is a favorite resort for anglers seeking sea-trout, which frequent the waters of the South-west Miramichi at that point. Take steamer or rail to New Castle, thence eighteen miles by stage.

In the *Tabusintac River* fine trout fishing may be found, with the guidance of Kane, at Goodwin's hotel. The route is by steamer to Chatham, thence via stage twenty miles. Board in Chatham at Mrs. Bowser's $1 per day. Fare from Chatham to Goodwin's $1.75.

Newcastle. On the Newcastle stream forty five miles distant, among the barrens and forests, will be found a fair hunting ground for moose.

The Restigouche Region—

Is one of the finest hunting and angling regions in America, and embraces one

million and a quarter acres of wilderness, comprising the county of Restigouche, the same being traversed in all directions by the Restigouche River and its tributaries, which afford easy thoroughfares for canoes to its innermost penetralia. Moose, caribou, bear, wild cat, and lucifee abound, beavers build their dams, and many varieties of fur-bearing animals and small game are found. The streams are filled with salmon and trout in their season. This region is easily reached by the Inter-colonial Railway, either from St. John or Quebec; or by Gulf Port steamers from Shediac on the Inter-colonial, or by stage from Chatham or Newcastle. Gulf Port steamers and stages touch at Dalhousie, near the mouth of the Restigouche, where anything needed for an outfit can be obtained. The railway runs through Dalhousie to Matapedia Station, thirty-eight miles up the river, and the centre of the salmon region. Here is a telegraph station, stores, post office, and an excellent hotel, kept by Mr. Fraser. Here can be obtained canoes, guides, and provisions, for the journey up the river; and in case sportsmen come into the wilderness at the upper end of the river, goods and necessaries must be sent up by a previous timely order to meet the incoming party. It is about eighty miles up stream to the portage which must be crossed by those taking the route referred to, which is by railway via Bangor to St. Croix, on the European and North American Railway, thence to Woodstock by rail, and thence by stage via the Grand Falls to the mouth of Grand River, which is fifteen miles further, the whole stage journey being about forty-five miles, over a most excellent and picturesque road that follows the course of the noble St. John River. At Grand River, batteaux can be procured through Mr. Violet, a French Canadian, to take you to the portage, fifteen miles up the river, at which point you meet the canoes from below. The advantage of the latter route, is that you reach more quickly the heart of the hunting country though for the matter of game, there is plenty, from Dan Fraser's all the way up stream, with the exception of an inhabited stretch of the first twenty miles or so. Cost of canoe, with two Indians, $2 per day and "found." Larry Pecaire, Catpat, Peter, and John Morrison are good reliable guides.

Cambelltown. In the vicinity of Cambelltown, which is on the Restigouche River, twenty miles above Dalhousie, is most excellent duck and goose shooting in September. The river above is filled with marshy and grassy islands, where the wild fowl tarry on their migrations. Guides and canoes obtained at the Indian Mission across the river. Cambelltown is reached by the North Shore steamers, plying between Shediac, Richibucto, Chatham, Bathurst, Dalhousie, etc., and by the Inter-colonial Railway from St. John and Shediac. Good hotels and delightful scenery. Also trout, sea trout, and salmon fishing.

Eel River, twelve miles drive from Dalhousie, over excellent roads, abounds in their season with curlew, brant, snipe, ducks, geese, and numerous other varieties of wild fowl. Indians and canoes can be had at Dalhousie, if not on the spot. Eel River is filled with marshes and grassy spots, with an abundance of suitable feed, and here the birds tarry long in their migrations southward to the waters of the Chesapeake and the sounds of North Carolina. The shooting is equal to that found later in the places last named.

St. John County—

St. John. Excellent fishing may be found in Tracey's Lake, twenty-eight miles from the city. Good hotel accommodations are to be had.

Riley's Lake, Saddler's, McCracken's, Chambers', Lerrio, Bal's, Beaver, Deer, Latemer, Long's, Spruce, and Lake Lomond are all fine waters to fish in, and vary from seven to twenty miles in distance from St. John. With the exception of the white trout family of this latter lake, the fish of all these waters are of the very finest class, being handsomely formed, brightly spotted, and of an exquisite reddish salmon color.

Lake Lomond is a delightful resort, being only eleven miles from St. John. It consists of a chain of three lakes, and in extent covers fully two thousand four hundred and eighty acres. It contains the red and white trout, both of which are taken at three and four pounds weight. The Ben Lomond House, at the foot of the lake, furnishes excellent fare. Boats are to be hired here. There is also excellent stream fishing near St John, as Mispeck stream, Nerepis, Radcliff's, Collins', and lastly, Garnett's Creek.

Quaco. English snipe, duck and woodcock. Reached via the Inter-colonial, or the European and North American Railroad.

Westmoreland County—

Petitcodiac, on the European and North American Railroad. Good trout fishing will be found in the Pollet River and Anagance streams near by. Comfortable accommodations in the village.

NOVA SCOTIA.

The Province of Nova Scotia, embracing an area of 15,627 square miles, is undulating and picturesque throughout the greater portion of its extent. There are in the interior dense wilds, where moose, caribou, deer, bears and other game are still found in quantities sufficient for exciting and remunerative sport. The coast is broken by a great many fine harbors, and lined with beetling crags. The streams of Nova Scotia are famous throughout the world for their angling, and are annually visited by great numbers of enthusiastic devotees of the sport. The best streams are, as a rule, preserved and rented, though for a moderate fare strangers may enjoy the privilege of casting their lines. The steamboat and railroad facilities of communication are well developed. Entertainment may usually be found at comfortable inns, and guides, canoes, etc., are always on hand.

Annapolis County—

There is an excellent game region, which embraces the wilderness extending from Yarmouth into Annapolis county, and lying north of what is known as the lake region of the Province. It only lacks the mountains to make it physically as attractive as the Adirondacks, while as for game and fish it is in every way infinitely superior. The region north of the lake country is a dense and extensive wilderness, in which game is but little disturbed. The Micmac Indians have always considered this and the lake country one of their best angling and hunting grounds. There are also in this region many varieties of fur-bearing animals, such as otter, mink, marten, together with bear, lucifee, and other game animals. These are common to all the districts inhabited by moose and caribou, and the streams will afford fine sport to the fly fisher in killing salmon and trout. Yarmouth county is nearly one-fourth water; every lake and river contains in their season salmon and trout. The land lies comparatively level, and on the borders of the rivers are many acres of meadow, overflowed by high water. The Tusket and its branches feed and supply its lakes. The best fishing is in the rapid portions of the rivers, between the lakes, and in the large pools at the foot of the rapids.

Cape Breton County—

Sidney. Scatari Island, five miles north of Cape Breton, reached from Sidney, is a great resort for many varieties of sea birds. From Sidney various steamer and stage routes render accessible numerous well known resorts for gunner and angler.

Cumberland County—

Parrsboro is the gateway of a famous moose and caribou country much frequented in years past by Provincial Governors and their distinguished guests. Bears are found here, wildcats, many red and cross foxes, and other fur-bearing animals, including otters, fishers, martens, minks, which are found along nearly all the streams; also ruffed grouse and black grouse. The latter are known as spruce partridge, and are met only in cedar and spruce swamps. Near Parrsboro both woodcock and duck shooting is good with some of the best snipe, plover and curlew shooting in America. Trout are found in the streams and salmon in the rivers. The Ottawa House, kept by Miss Wheeler, is a first class summer resort commanding the finest scenery on the Basin of Minas, the country of "Evangeline." Besides its scenery and sea bathing, yachting, etc., Parrsboro abounds in rare minerals and is much visited by mineralogists of all countries. Guides can be had for the wilderness either for moose hunting or salmon fishing at $1.25 to $1.50 per day. One of the best is the half breed Indian, John Logan, who resides at Half Way River, on the Basin. Parrsboro is reached by steamer from St. John, New Brunswick or by rail and stage from Halifax.

Tantramar Marshes. Abound in curlew, plover, and snipe—a magnificent shooting ground reached by stage from Amherst, Lockville, and Parrsboro.

Amherst. In the neighborhood the sportsman will find ducks, plovers and snipe. Reached via Inter-colonial Railroad from St John or Halifax.

Apple River, thirty-four miles from Amherst is a little village on the river of the same name. Here is excellent trout and salmon fishing.

River Phillip, reached by rail from Amherst, has good salmon fishing. A small hotel here offers entertainment to sportsmen.

Digby County—

Digby, on the south-west shore of Annapolis Bay, is much visited in summer for its fishing and shooting. Reached by stage from Yarmouth or via the Windsor and Annapolis Railroad. Hotel here.

Halifax County—

St. Margaret's Bay is one of the most beautiful sheets of water on all this coast. The bay offers a variety of fishing and in the vicinity are some splendid salmon and trout grounds. Hobley's Lake, East River and others, well known to anglers who have visited this region, afford as fine sport as can be desired. The route is via stage-coach from Halifax.

Five Islands, Margaret's Bay, reached by steamer. Large brook trout, weighing from one to three pounds.

Indian River has some fine salmon, trout, and in their season, sea-trout. The "Alma," the "Inkerman," and "Mason's" are popular hostelries. Reached by stage from Halifax daily; distance twenty-five miles. Guides, boats, etc. Hotel fares $2 per day.

Dartmouth Lakes, six miles from Halifax, contain trout, and there are various other lakes and streams in the vicinity, of various degrees of excellence as fishing grounds.

Tangier. Sea-trout in season. Reached via coach from Halifax. Board and guides can be found at the farmhouses.

Inverness County—

The Margaree River is one of the finest salmon streams in the country and during the season is much visited by anglers from far and near. Besides salmon various other kinds of fish are found in its waters, including the gaspereaux. Numerous shade trees, principally elms and evergreens, stud the plain, and through these winds the river the perfection of a salmon stream inasmuch as it presents a succession of deep pools and shallow rapids, with pebble bottom as clear as crystal, sheltered by trees, but without any impediment anywhere to the casting of a line or the landing of a fish, and above all, totally free from the *bete noir* of the angler, the black fly or the mosquito. The northeast Margaree is the main river, running down nearly the whole extent of the northeast angle of the Island from near Cape North, and is a clear stony stream, while the west Margaree is small and muddy, and comparatively unfrequented by salmon. The best fishing ground is at the forks, where is the little village of Margaree Forks. Reached by boat from Halifax to Port Hastings, thence stage via Port Hood to Margaree Forks, distance sixty-eight miles; or to Margaree, eight miles farther. Another route is from Portland to Halifax and return, $10; to Pictou and return, $6; to Hawksberry and return, $6; to West Bay and return, $2; to Baddeck and return, $2; to Margaree and return, $6. To these items add staterooms, meals, and incidental expenses, and an estimate can be formed of the cost of travel. Once there the cost of living is very moderate.

Lunenburg County—

Chester is pleasantly situated on a slope overlooking Chester Basin and Mahone Bay and has two good hotels. From the wharf may be caught tomcods, flounders and cunners, and there is every facility for deep sea fishing. Caribou are found at Gold River, and the wilderness beyond Beech Hill is the haunt of moose. Salmon and trout in all the neighboring rivers.

Queens County—

Port Mouton, with its broad white sand beaches and sedge flats, is covered in autumn with sea-ducks, black ducks, grebe, brant, geese, snipe, etc. Stage to Liverpool, from Halifax, and thence wagon to Port Mouton. Hotel kept by Appleton.

Here is one of the best moose regions in the Provinces. Stage to Liverpool;

thence wagon to Port Mouton, Port Joli, and Tom Tigny Bridge. At the latter place stop at Dunlap's who will haul camp stuff into the moose country. Indian guides can be hired at Bridgewater, or at Mill Village, near Port Medway, on the Port Medway River. Moose calling from middle of September until close of October. Tracking as soon as snow falls.

Richmond County—

Irish Cove is in a region where the brooks are full of salmon and trout. Loch Lomond, twelve miles south-east, reached by carriage road, is a lake six miles long abounding in trout. There are Scotch villages on its shores where the angler may find entertainment. Irish Cove is on the stage line between Port Hawksberry and Sidney. The streams crossed by this route are all worthy of a visit.

Shelburne County—

The Jointon and other rivers in this county contain salmon and trout. Moose and caribou are abundant.

Yarmouth County—

Yarmouth, on the bay side of the cape, is two hundred and forty miles from Boston, and is reached by boat from latter place, Portland, and St. John's. From Yarmouth the angler may choose his route, either by the bay coast as far as Digby, with numerous salmon and trout streams; or up the Tusket, with its three branches, all of which are good streams. Boats, guides, and camping outfit may be obtained at Yarmouth. The salmon fishing is fine in all the streams in this country. The flies mostly used are the large Montreal, the yellow fly and a small salmon fly, with blue-jay wings.

Kempt. Fine trout fishing in the Tusket River. Reached via boat from Halifax, or Boston, to Yarmouth, thence via stage or wagon. Guides and boats can be engaged by addressing Mr. William Brosser, Kempt. Boatmen charge $1.50 per day. Board and other accommodations cheap.

Annapolis Royal. In the bay is salt water fishing, and on the hills to the south are some good trout streams. Reached via rail or steamer. There are good hotels here.

PRINCE EDWARD'S ISLAND.

This island situated in the southern portion of the Gulf of St. Lawrence, is often visited by anglers for its salmon and trout fishing. The coast presents a remarkable succession of broad lagoons and bays and projecting headlands. These harbors thus formed are in season excellent salmon fishing resorts, while nearly all of the streams of the island abound in trout. Prince Edward has steamboat communication with Pictou, N. S. and Boston, Mass., via Halifax. All points of the island are easily reached from Charlottetown, via rail and good wagon roads. The stranger will find the people here simple and hospitable, with the expenses of living moderate.

Kings County—

Morrell, on the Morrell River, is a headquarters for fishermen. Reached via the Prince Edward Island Railway from Charlottetown.

St. Peters, reached as above, on St. Peter's Bay, is a small village where the angler may find accommodation at the Prairie Hotel. The salmon fishing in the bay is superb. The fish are very large and afford the best of sport.

Princes County—

Malpeque, or *Princetown*. Bay-bird shooting on Fish Island, in August. Steamer to Charlottetown, rail to Malpeque Road. There are three hotels.

Queens County—

The Wilkins River. Good trout fishing may be found here. Take steamer from Pictou to Charlottetown (fare $2), where there is a hotel kept by Mr. Davis, who will furnish conveyance and act as guide to the river, fourteen miles distant. Accommodations will be found at the house of Mrs. Baens.

Wilkins River affords good trout fishing. Take steamer to Charlottetown, thence via wagon road fourteen miles.

Rustico, a marine hamlet on the Western Shore, is reached via the Narrow Gauge Railroad from Charlottetown. There are excellent facilities here for boating, fishing and gunning. The Ocean House furnishes comfortable accommodations. The Hunter River contains fine trout, and the angler will find a hotel at New Glasgow, reached by drive from Rustico.

In *Bunk River*, reached from Charlottetown, the angler will find good fishing.

NEWFOUNDLAND.

Newfoundland has an area of 40,200 square miles. The coast is indented by remarkable bays, inlets and fiords, of which there are a great number. The interior consists for the most part of vast rocky wastes covered only with moss or stunted vegetation. There are numerous inland lakes and ponds, which with the rivers constitute one-third of the surface. The island is reached via the Halifax and Liverpool steamships which call at St. John's, and by regular bi-monthly steamer from Halifax, fare $15, steerage $5. The fur animals of the country are reindeers, wolves, bears, foxes, of which there are the blue or Arctic, and the red varieties, the latter including the cross, silver and black; otters, beavers, martens and muskrats. The hare of Newfoundland is the Arctic hare, *Lemus Arcticus*. It sometimes weighs fourteen pounds and upwards. There is no other kind in the island. The only deer indigenous to Newfoundland, is the caribou. The game birds are geese, brant, ducks, including black, "pie duck" or American golden eye, long tailed duck, locally known as "hound," American eider, sea duck, king eider, harlequin, and occasionally the surf duck, American scooter and velvet duck. The American golden plover is very abundant in autumn, and the ring plover, the piping plover, and the grey plover are all pretty common in the fall of the year. Wilson's snipe is a summer migrant, arriving at the end of April. The American jack snipe are periodical visitors. Of sandpipers there are a large variety, Bonapartes and the yellow shanked are very common. Of walrus, the Esquimaux is the most common species. Of partridges, there are the Canada grouse, or spruce partridge, the willow grouse, and rock ptarmigan or, as it is locally called, mountain partridge. The rivers and lakes abound in trout of three or four kinds, and salmon are abundant. A species of fish larger than the trout is said by the Indians to be found in several of the large lakes.

St. John's. The surrounding country is full of trout streams, which are accessible by fine carriage road.

Bay Bulls, on the Avalon Peninsula, and accessible from St. John's by boat or stage, is a favorite resort for hunting parties from that city, who here spend several days in shooting and fishing.

Cape Broyle, thirty-eight miles from St. John's is in the vicinity of good salmon fishing.

Fogo, Biscay Bay River. At the mouth of the river sea-trout are caught running in weight from one and one-half to four pounds.

La Poile Bay. The northern arm of the river that empties into this bay contains salmon, and there are several good runs three-quarters of a mile from its mouth. The fish are found in the right hand channel only.

Port au Basque, about five miles to the westward of La Poile Bay, has a small, deep, but narrow stream; current very rapid; about one mile up are two small falls, four to five feet in height. Salmon in this stream.

Trout River, between York Harbor and Bonne Bay, (about thirty miles to the westward of York Harbor), affords good casting ground from Shingly Beach, and sea-trout are caught at junction of salt and fresh water.

Hawke Bay, Ingornachoix Bay. Three rivers discharge into Hawke Bay, which is completely landlocked, the land being high and thickly wooded. The eastern river of the three, about a mile from the mouth, which is narrow, is bifurcated by a small island; in the forks thus formed large salmon are caught.

Harbor Grace. In the large lakes or ponds in the vicinity good trouting may be found. Big Island Pond, ten miles north furnishes fine sport.

LABRADOR.

The peninsula of Labrador stretches from the Gulf and River of St. Lawrence north to Hudson's Strait. The coast is rugged, bleak and desolate; the interior region is covered with low mountains, barren plateaus, vast stretches of moss-covered plains, and interspersed with lakes, swamps, boulders and masses of rock. Reindeer, bears, wolves, foxes, and other game, once abundant, are gradually diminishing in number. The population is confined to the coast region, and are principally engaged in the fisheries for which the country is noted. From the River St. John du Nord, which is the boundary line between the Province of Quebec and Labrador, to the Esquimaux River, a distance of seven hundred and twenty miles east of Quebec, there are no less than twenty salmon rivers, eight or nine of which are superior for salmon fishing, and the majority of them frequently visited by both Canadian and United States sportsmen. Leases of these rivers for rod-fishing may be obtained from W. F. Whitaker, Commissioner of Fishing at Ottawa, P. Q. They can be reached only by *challoupe*, the fishing smack of the St. Lawrence. These can be hired either at Quebec, or at Tadousac, north of the Saguenay, both of which places are reached by steamers plying twice or three times a week in mid-summer. The expense of a *challoupe* is light. Tents, canoes, and complete outfits required. A great variety of wild fowl are found all along the coast.

Henley Harbor (Strait of Belle Isle). This is a fishing station at the extreme

eastern end of the strait, where good board and lodging accommodation may be obtained. In August the curlew shooting is superb, and other beach birds and wild fowl may be had. Good sea trout fishing in season. The scenery is the most picturesque in Labrador. Board $2 to $4 per week. Belle Isle with its light-house and perpendicular cliffs, three hundred feet high, is within easy sail. There are no game animals on Belle Isle.

Forteau. This is a light-house station on a headland in the Strait of Belle Isle. Good accommodation with the light keeper. Plenty of wild fowl.

Blanc Sablon. A fishing station near the middle of Belle Isle Strait, located on a landlocked and very picturesque bay. Good board and lodgings. Wild fowl and sea trout.

Ship Harbor. A fishing station north of Belle Isle. Fine sea trout and birds of various kinds.

Tub Harbor. Good shooting and plenty of fishing for shore cod. Two or three houses here, but will have to camp out. Located about one hundred and twenty miles north of Belle Isle. There are numerous bird rocks and islands in the vicinity within a radius of fifteen miles that swarm with birds in great variety.

Sandwich Bay. Fishing station, latitude fifty four degrees nearly. Sea trout and birds. A few caribou on the mainland. Lodgings may be procured.

Flatwater. Esquimaux Bay, latitude fifty-five degrees nearly. Excellent sea trout fishing, and also brook trout. Canada grouse and ptarmigan. A few caribou.

Rigolette. Hudson's Bay Company's post at the head of Esquimaux Bay. Excellent lodging accommodations. Many salmon are taken here in pound nets, and the rod fishing at the head of the "Narrows" that connect a large interior lake with the bay a mile and a half from it, is the best in Labrador. Birds and caribou may be shot, the former in great numbers including the eider duck which is found all along the coast; also ptarmigan and Canada grouse. Good fishing for speckled trout.

Northwest River. Hudson's Bay Station, thirty miles up the lake, northward of Rigolette, and about seventy from the ocean. Excellent lodging accommodations and fine wooded country, with Northern hares, ptarmigan, caribou, and speckled trout.

MANITOBA.

Manitoba, bounded on the south by the United States and stretching North, East and West to the North-west Territories, comprises an area of 14,340 square miles. The country is for the most part a prairie, perfectly level and interspersed with islands of oak and other forest trees. The inaccessibility of the country has retarded its rapid settlement, so that here the hunter will find vast tracts of undisturbed territory, where game will be found in all its primitive abundance. The routes are via the Union Pacific Railroad to Fargo, thence Red River steamers, or via the Dawson or Canadian route from the head of Lake Superior, fifteen hundred miles from Quebec. Winnipeg, the seat of Government, is a thriving town of six years growth, and within three miles on any side of it, during the spring and fall, the hunter may fill his game bag with pinnated grouse, ruffed grouse, or the white hare, not omitting duck, plover, several species of goose and many other water-fowl. The surrounding country, on the west side of the river, is level prairie, occasionally broken by small bluffs of poplar, and every here and there a swamp or musky, all of which in the spring are covered with ducks. Following the course of the river to Lake

Winnipeg, the sportsman will come to one of the largest duck-shooting grounds in the country, perhaps in the world, the mouth of Red River where the amount of water-fowl is something wonderful. The Indians here never use more than one-half oz. of shot, No. 2, but they slaughter the birds by creeping up to a flock in their canoes, and firing at a few yards. There are, however, here, many residents, American, Canadian, and English, who are lovers of the gun and dog. In the fall of the year the prairies literally swarm with pinnated grouse, and it is no uncommon feat for a fair shot to bag from sixty to one hundred and fifty in one day. The Pembina Mountains, about seventy miles distant, are favorite feeding grounds for wavies. Woodcock are found about Winnipeg.

Besides the birds mentioned, swans, cranes, grey and white pelicans, etc., are very plentiful in the lakes and marshes, with which the country abounds. The flesh of the grey crane is very fine and much esteemed, whereas in the States it is considered unfit for food. There are here two species of white crane, one very large, and having a crimson patch on the top of the head; this bird is very showy, and if only winged, extremely dangerous to approach.

The yellow legged plover is also very plentiful, and one can make a bag in almost any marsh or swamp; in the fall of the year they are very fat and a delicious addition to the larder. The game consists chiefly of moose, elk, caribou, black and brown bear, with beaver and other fur animals. Moose, especially in the vicinity of Pembina Mountains and the region north of Shoal Lake, are very numerous, as also in that portion of the country lying between Winnipeg and the Lake of the Woods. Unlike those in Nova Scotia and New Brunswick, the moose here do not "yard" but travel generally in pairs or at most four together. The hunting of them is very difficult and great hardship is endured by the hunter, being compelled to use very large snow-shoes, and then sinking to the knees at every step, the snow in this country having no crust at any time during the winter.